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Net Neutrality: A lack of association between pornography exposure and sexual functioning and well-being

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Thesis Abstract

Introduction: Since the advent of the internet, individuals have unprecedented access to accessible, anonymous and affordable online sexual content (Cooper, 1998). The literature has highlighted strongly held assumptions about the harmful influence of online sexually explicit material (oSEM) on a number of variables important for psychological health and functioning. These include: sexual behaviour, body image, non-egalitarian gender roles and relationship satisfaction. The veracity of these conclusions is limited by the methodological shortcomings and ideological perspectives inherent in the study designs. Despite this growing body of research, there is still little known about the processes that underlie the relationships between oSEM-use and psychosocial outcomes. This hinders the formation or validation of theories relating to sexual media effects.

Aims: This project aimed to examine the impact of oSEM-use on body image, sexual satisfaction, sexist attitudes and mental well-being. We examined the role of perceived realism (the degree to which the sexual portrayals in oSEM are perceived as realistic) and the extent to which this mediated the relationship between oSEM-use and these variables. Finally, the role of family communication about sex, and whether this moderated the function of perceived realism was assessed. The purpose was to establish a moderated mediation model of oSEM effects and enhance the theoretical understanding of the influence of oSEM. In addition, we examined whether a cohort, whom we termed “Generation Sex” were more susceptible to the possible effects of oSEM. This cohort, aged between 18 and 24, will have developed through adolescence coinciding with this proliferation of online pornography.

Design: This study used a cross-sectional, quantitative, questionnaire-based design.

Method: Participants (n=272) were sampled opportunistically through social media and poster advertisement. The data was collected using an online survey. Participants were asked to provide information about their sexual experience, behaviour and use of oSEM. They also completed seven validated self-report measures: Perceived Realism, New Sexual Satisfaction Scale Short Form (NSSS-S), Body Areas Satisfaction Scale (BASS), Warwick-Edinburgh Mental Well-Being Scale (WEMWBS),

Ambivalent Sexism Inventory Short Form (ASI-SF), Ambivalence Towards Men Inventory Short Form (AMI-SF) and the Family Communication Sex Quotient (FCSQ).

Results: 84.6% of the sample reported to have used oSEM in the last three months. Correlational analysis revealed no associations between (1) oSEM-use and (2) body satisfaction, sexual satisfaction, mental well-being, sexist attitudes and family communication about sex. A significant indirect effect of oSEM-use on ambivalent sexism, mediated by perceived realism, $b = .005$, 95% BCa CI [.001, .010], $p = .023$, and a significant indirect effect of oSEM-use on ambivalent sexism toward men, mediated by perceived realism, $b = .004$, 95% BCa CI [.001, .009], $p = .036$, was shown, both with a small effect size. This relationship was not moderated by family communication about sex. No group differences between “Generation Sex” and “non-Generation Sex” (aged 25 and over) were revealed.

Discussion: This study demonstrated no significant relationships between oSEM and the psychosocial outcomes under investigation. The small indirect effect through perceived realism suggests that for those who perceive oSEM to be more realistic, may also hold more sexist attitudes towards both women and men. This provides tentative support to theories of media effects which suggest the influence of differential susceptibility characteristics (in this case, perceived realism) which might underlie why some individuals may be more vulnerable to the effects of media than others. However, the very small effect sizes and absence of significant correlations between oSEM-use and the tested variables conflict with the extant literature. This provides an interesting challenge to the dominant discourses surrounding the influence of oSEM.

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Lastly I would like to thank all the people who took part in my study for sharing something very personal with me. I truly appreciate your honesty and openness.

Statement of contribution

I, Ruth Charig, declare that this thesis is the product of my own original work which I have carried out whilst enrolled on the Trent Doctorate in Clinical Psychology. I was responsible for obtaining ethical approval, the recruitment of participants, data collection and analysis for the study. I have received regular input and supervision from my supervisors, Dr Dave Dawson and Dr Nima Moghaddam as well as additional consultative support from Dr Roshan das Nair, through the development, analysis and write up of this research.

Table of Contents

Systematic Review.....	8
Abstract.....	9
Introduction.....	10
Method.....	14
Results.....	18
Discussion.....	38
References.....	43
Journal Article.....	49
Abstract.....	50
Introduction.....	51
Method.....	58
Results.....	64
Discussion.....	75
References.....	85
Extended Paper.....	93
1. Extended Background.....	94
2. Extended Methods.....	127
3. Extended Results.....	133
4. Extended Discussion.....	151
5. References.....	168
Appendices.....	185
Poster.....	199

Appendices

Appendix A – Literature review search terms	185
Appendix B – Ethical approval.....	186
Appendix C – Poster advertisement.....	187
Appendix D – Online text advert.....	188
Appendix E – Participant information and Consent.....	189
Appendix F – Demographic information.....	192
Appendix G – Sexual experience and behaviour.....	194
Appendix H – oSEM-use.....	195
Appendix I– Sex Education Survey.....	197

The Impact of Pornography Use on Romantic Relationships: A Systematic Review

Abstract

The impact of pornography is a growing area of research interest, with studies reporting on the many effects of pornography-use on individuals. More recently, research has begun to look at the systemic impact of pornography-use; i.e. on relationships and the wider familial context. Relationships and sexuality are fundamental aspects of being human, and therefore there is a need to examine what may serve to threaten or enhance them. The current review aims to assess the impact of pornography-use on romantic relationships.

A comprehensive review of five databases, including PsycINFO, MEDLINE, SCOPUS, PsycARTICLES and PubPsych was conducted. Studies were included if pornography was used by one or both of the dyad within a nonclinical population and its effects on the relationship were measured and reported. The identified studies were assessed for quality using the Mixed Methods Assessment Tool (MMAT).

Of the 4,742 articles identified, 13 met the inclusion/exclusion criteria and were deemed relevant. 11 of these used quantitative, mainly survey-based, methodologies and two used qualitative methodologies. The quality of the studies was generally poor and the results variable. Overall, some reported that pornography consumption was negatively associated with relationship quality and sexual satisfaction, and that, for some individuals, pornography-use by a partner was perceived to be comparable to infidelity. Other studies revealed that, when used in a mutual fashion, pornography had positive associations with sexual satisfaction and relationship quality, creating a more open, erotic climate. Based on the predominantly correlational nature of the study's designs, it is only possible to say there are apparent associations between porn-use and relational outcome measures. It is not possible to comment on directionality or how the associations may be mediated or moderated. Further, methodologically robust research investigating the directionality of the inferred causal pathways would be of benefit.

Introduction

Rationale

With the advent of the internet in the 1990s, individuals of all ages have had unprecedented access to pornography and other sexually explicit materials. A report by Ropelato (2007) highlighted the extensive nature to which pornography is a presence in modern society. It found that pornographic websites constituted approximately 12% of all websites (4.2 million websites) and 25% of total search engine requests (68 million). Worldwide pornography revenues were found to be in excess of \$97.06 billion dollars. Pornography existed long before the internet or even video technology and its use can be traced back through history to the Ancient Greeks and Romans. This diversity of pornographic material throughout history and in today's modern society suggests it is a subject of significant interest and has the potential to play a very influential role in human sexuality (Pappas, 2010).

Previous research has mainly focused on how pornography-use affects the individual consumer, especially in males (Malamuth, 1996). The current review includes instances where pornography consumption is by one individual within the dyad, but affects the broader dyad. Much of the literature appears to support the view that pornography consumption is associated with various negative outcomes (Manning, 2006). A meta-analysis conducted by Oddone-Paolucci, Genius and Violato, (2000) examining 46 studies found that exposure to pornography was associated with the risk of an individual developing sexual deviant tendencies, committing sexual offences, and greater acceptance of 'the rape myth' (believing women cause rape). Other negative effects cited in the literature include the objectification of women, devaluation of the importance of monogamy and decreased satisfaction with partner's sexual performance and physical appearance (Drake, 1994).

Comparatively little research has considered on the positive effects of pornography consumption. One study (McKee, 2007) conducted a survey of 1023 consumers and found that pornography-use increased the user's open mindedness towards sex and tolerance of other's sexualities, provided pleasure and enabled users to talk more openly with their partners about sex. However, no clarity was provided about the

various referents in the review e.g. age, relationship status or whether it was used within a dyad.

Despite being most commonly consumed as a solitary activity (Manning, 2006), there is a growing interest in the impact pornography might have on the user's wider system, namely the impact on romantic or marital relations. A previous review by Manning (2006) wished to address the lack of research in this field and explore the systemic impact of pornography use. The review concluded that although there may be some positive effects, such as enhancing sexual communication and intimacy when used in a mutual fashion, the research seemed to agree that the effects were far more detrimental to the marital union. Manning (2006) stated that pornography served to threaten the stability of the relationship, reduce the quality, and decrease sexual satisfaction. When used in solitary and without the knowledge or involvement of their partner, pornography-use was also viewed as a betrayal and act of infidelity. The current review only retrieves one study that was conducted prior to the Manning (2006) review which could raise questions about the quality of the search. When reviewing Manning's (2006) reference list, many of the studies focused on pornography-use within the context of addiction and non-normative use and on the broader familial impact (as opposed to dyadic relationship outcomes). The review was not systematic in nature and has not subsequently been updated to capture research post-2006, leaving a gap in the literature for the current review.

Romantic relationship quality is believed to be a critical predictor of subjective well-being (Demir, 2008) with poor quality being associated with a range of negative outcomes (Meier, 2013). Research has also demonstrated a link between sexual satisfaction and relationship quality (Byers, 2005) but has yet to look specifically at the psychological processes by which pornography exerts its effects on these relational outcomes, if any (Manning, 2006).

The Interpersonal Exchange Model of Sexual Satisfaction (IEMSS; Lawrence & Byers, 1995) hypothesises a pathway whereby pornography-use leads to an expected level of sexual reward, decreasing sexual satisfaction with their partner (if the sexual experience is not as rewarding as what is obtained through pornography-use), leading to a decrease in relationship satisfaction and consequently decreased well-being

(Yucel & Gassanov, 2010). Therefore, given the scope of its potential influence, understanding the impact of pornography on relationships seems a clinically relevant and important area for research.

This pathway proposed by the IEMSS (Lawrence & Byers, 1995) does not consider the directional nature of the variables. It could be, for example, that sexual dissatisfaction drives pornography-use in some instances. Multiple pathways seem possible but it may be difficult to identify these without studies that use sufficient (e.g. prospective, longitudinal, time-series) designs. It is also important to consider other potential pathways through which pornography exerts its effects on relationship quality without mediation through sexual satisfaction. For example, if pornography-use is perceived as an indicator of deficiencies in the relationship or a sign of poor communication between the dyad.

The Sexual Scripts Model (Gagnon & Simon, 1973) provides an alternative explanation for how pornography-use has the potential to impact relational outcomes. Bridges (2014) described how pornography-use might influence the development of particular 'scripts' (memory structures that provide information and rules that influence behaviour) that emphasise beauty standards, ideas of constant sexual availability and novelty within a sexual relationship. Pornographic materials rarely include scripts for intimate sexual acts within relationships and therefore sexual activity with a real-life partner is thought to compare less favourably to these unrealistic scripts.

Consensus appears to be lacking regarding pornography's effects on individuals within the context of a relationship and the relationship itself. A caveat to this is that we do not even know whether we should expect an effect. Current research appears biased towards reporting of negative outcomes. However, these studies are subject to considerable criticism as they tend to lack reliability, base their assumptions on correlational data and not report other associations or explanations for its correlates, (Manning, 2006) such as what other factors might influence relationships (e.g. communication, conflict resolution and affectional expression; Spanier, 1976).

A challenge when attempting to review literature in this field relates to the diversity and range of definitions that exist for pornography (Manning, 2006). There is no agreed

upon definition (Daneback, Træen & Månsson, 2009) and is “dependent not only on cultural, social and historical contexts, but also on individual’s own experiences and beliefs” (Ciclitira, 2002, p.191). Although a pre-determined definition has not been selected, the review has taken a broadly inclusive approach to terminology subsumed as ‘pornography.’ How each study defines pornography will be recorded so the reader can readily compare and contrast as appropriate. Another challenge relates to pornography genre and how normative use is defined. The current review will focus on the ‘normative’ consumption of ‘common’, non-violent genres of pornography, the rationale being that much of the existing literature is limited to pornography depicting violence or rape and/or its impact on non-normative or clinical samples e.g. those with addictions or criminal behaviour (Carroll, Padilla-Walker, Nelson, Olson, McNamara Barry & Madsen, 2008). However, few studies explicitly state what constitutes problematic use or how they classify ‘common’ pornography. Some would argue that many forms of ‘common’ pornography are at least implicitly violent. Given the ubiquity of use, it seems clear that most users are not starkly affected.

Objectives

The aim of the current review is to provide a comprehensive and critical summary of the current research looking at the impact of normative pornography consumption on subjective indicators of satisfaction and wellbeing within current romantic relationships. The previous review within this field (Manning, 2006) described how many assumptions within the literature are based on research that is correlational in nature. There are also many unvoiced assumptions and underlying biases that are not made explicit (e.g. apriori expectations that pornography is bad/wrong). Therefore, this review will attempt to evaluate this literature and examine the extent to which it is basing its conclusions on inferred causal relationships whilst endeavouring to remain neutral and detached from implicit biases.

Method

Information sources and search criteria

A systematic review of psychology, social science and medical databases was conducted. Table. 1 details the scope and areas covered by each of these databases.

Table 1

A description of databases searched

Database	Dates covered	Number of journals	Topics covered
PsycINFO	1597 – July, 2015, with comprehensive coverage from the 1880's	Approximately 2,500	Psychology, behavioural and social sciences
MEDLINE	1946 – July, 2015	More than 5,600	Those of interest to health professionals including life sciences, biomedicine and behavioural sciences.
PsycARTICLES	1911 – July, 2015	Approximately 110	Psychology, behavioural and social sciences
SCOPUS	1823 – July, 2015	More than 22,000	Life, social, physical and health sciences
PubPsych	1945 – July 2015	Unspecified but accesses records from 9 databases	Topics relevant to academic and professional psychologists

The broad search concepts consisted of pornography and intimate relationships. A priori search terms relating to pornography consistent with previous reviews (Horvath, Alys, Massey, Pina, Scally & Adler, 2013; Harkness, Blaszczyński & Mullan, 2015) were chosen e.g. porn, sexually explicit material and erotica (please see Appendix 1 for full list of search terms). Search terms relating to romantic relationships and its synonyms (e.g. couples, intimate partner, and sexual relations) were chosen by the

author and discussed with co-authors for consensus. Terms were exploded, focused or mapped to search headings according to each database.

Eligibility criteria

Studies were included in the review based on the following inclusion and exclusion criteria. Review of all the titles and abstracts allowed for an initial judgement of inclusion. However, if ambiguity remained, examination of the full text was conducted.

Inclusion and exclusion criteria

Studies were chosen for inclusion if the research centrally examined the use of legal pornography by at least one member of a romantic dyad, and its influence on relationship outcomes. Studies that focused on the individual, outside of the relationship context were not included, (for example whether pornography influences individual's attitudes towards sex and relationships etc.). The legal age of pornography access in the United Kingdom is 18. Only studies whose populations included individuals aged 18 and above were chosen with no upper age limit set. To reduce the introduction of bias through retrospective recall, only studies that focused on participants who use pornography in current romantic relationships were included.

The consumption of pornography was limited to accessing and viewing visual or written material. Studies which included the use of pornography under the broader title of online sexual activity, which may include interactive participation, were excluded. The rationale being that this type of interaction may be closer to infidelity than passive viewing.

No restrictions were placed on the type of methodology as this may have limited the results retrieved. Both qualitative and quantitative designs were included. Only articles that reported original, empirical data and were published in a peer-reviewed journal were included. Works published in dissertations, book chapters, case studies, theoretical essays and commentaries were not included for review. Although this may serve to introduce bias, these criteria allow for a minimum quality threshold to be met.

The review aimed to look at normative pornography use and its impact within a non-clinical population. Studies that reported pornography consumption within the context of addiction have been excluded. Also for this reason, articles reporting extreme content including non-consensual, violent or illegal acts (e.g. rape, paedophilia, bestiality etc.) were also excluded.

Study selection

An initial input of search terms into the databases identified 4741 papers for potential inclusion. One paper was identified from an additional source (Google Scholar). A scan of the titles and abstracts left 46 potentially eligible articles after removal of duplicates. After removing all articles that were not from peer-reviewed journals ($n = 14$), 32 full text articles were considered for inclusion. A manual search of the reference lists revealed a further three studies for consideration. Application of the inclusion and exclusion criteria to the remaining 35 articles left 13 studies to be included in the review (see Figure 1. for an overview of the literature selection process).

Data extraction

Studies were separated into two tables by methodology; quantitative (Table. 2) and qualitative (Table. 3). For all the studies, authors, date, country of origin, population characteristics and a summary of key points and findings were tabulated. In the quantitative tables, methodology and analysis, relevant variables and measures and effect sizes (if reported) were included. The qualitative table included method of data collection, analysis and epistemological position.

Assessment of methodological quality

To assist interpretation of findings, to highlight and limit potential bias, it is necessary to conduct a quality assessment of individual studies (Higgins & Green, 2008). However, an associated challenge relates to how to assess quality when faced with a methodologically diverse evidence-base, as many tools lack a clear protocol when faced with qualitative or mixed-methodological approaches (Walker, Bergh, Page & Duvendack, 2013). Both quantitative and qualitative methods were included in the

current review. For this reason, the Mixed Methods Assessment Tool (MMAT) was applied to the selected studies. This tool, developed by Pluye, Robert, Cargo, Bartlett O’Cathain, Griffiths, Boardman, Gagnn and Rosseau (2011) is designed to assess quantitative, qualitative and mixed-methods research using the same assessment scale. Although still a relatively new assessment tool, studies have found it to offer a high level of reliability (Pace, Pluye, Bartlett, Macaulay, Salsberg, Jagosh & Seller, 2012). To assist with the synthesis and discussion of results, the tool was adapted to be able to record other areas of bias, to provide more depth to the evaluation of the studies.

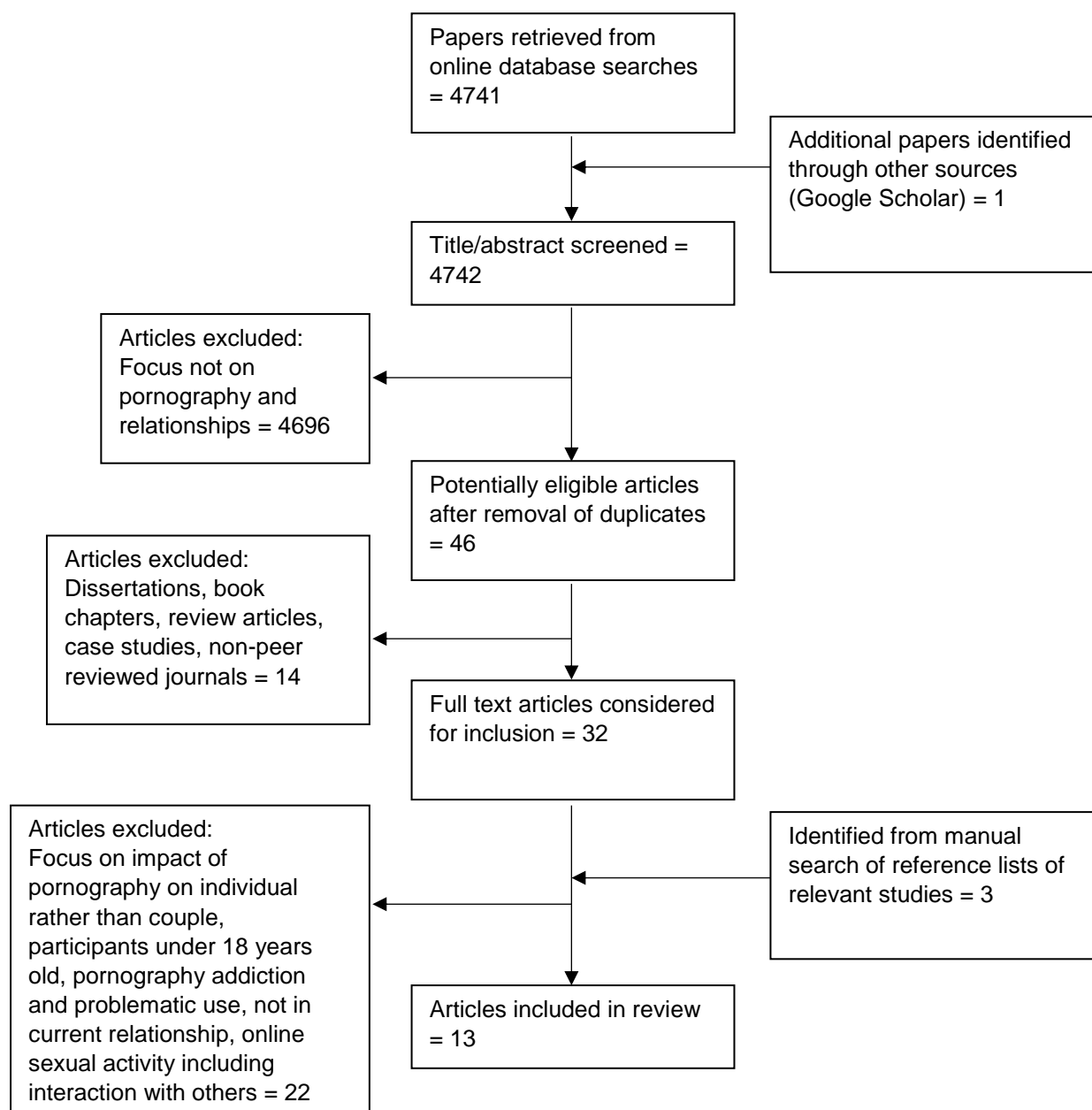


Figure 1. QUORUM flowchart outlining the selection process.

Results

From the 13 articles meeting criteria for review, 11 utilised a quantitative methodology and two qualitative. Pertinent characteristics and a summary of key findings are detailed in Tables 2 and 3.

Methodological Quality

Methodological quality was found to be generally quite poor across most of the studies with the exception of one quantitative study, Yucel and Gassanov (2010) and one qualitative study, Bejamin and Tlusten (2011). A summary of the evaluation of quality can be found in Table 4.

Quantitative studies

Sample population and selection methods

Attempting to examine a representative sample to allow for generalisable results within research is a challenging task. To compensate for this, robust recruitment methods endeavour to reduce or eliminate sampling bias where possible, and calculate an appropriate sample size to provide power to their findings. All the quantitative studies, with two exceptions (Staley & Prause, 2012; Yucel & Gassanov), made no mention to how they attempted to minimise bias or create as truly a representative sample as possible. Sample sizes ranged from 74 to 1291 participants and consisted of predominantly white individuals. They were mainly identified through convenience sampling (i.e., non-random/non-stratified). Although the samples under examination seemed appropriate to be able to address the research questions (i.e. in romantic relationships in which a least one member of the couple views pornography), none of the studies clearly stated their inclusion or exclusion criteria for participation.

Design biases

Nine of the 11 quantitative studies utilised a questionnaire or survey design. Although this allows for ease of implementation and access to large sample sizes it also has the

potential to introduce bias. Some measures were distributed by post or online and so the researchers will have had no control over the environment in which they were answered. This may have allowed for others to influence the participant's response. For example, if the respondent was concerned their partner might see their answers, they may answer in a more socially desirable way and may not necessarily be a true representation of their views.

A further common source of bias associated with questionnaire designs relates to the use of self-report. Self-report methods rely on participants to be honest in their responses and have the ability to introspect. Given the controversial and sensitive nature of the topic under examination, it might be predicted that participant's responses might be more influenced by social desirability. Most of the studies mentioned this as a limitation in their design. Two studies (Gwinn, Lambert, Fincham & Maner, 2013; Szymanski, & Stewart-Richardson, 2014) acknowledged this potential flaw and included a measure of social desirability to examine its influence further.

Table 2

General characteristics and key findings of quantitative studies

Author(s) and Location	Methodology and Analysis	Sample Characteristics	Relevant variable(s) or measure(s)	Summary Points and Key Findings	Effect size
Szymanski & Stewart-Richardson (2014) United States	Method Online surveys Analysis Inferential statistics	Population: Male, heterosexual undergraduates in romantic relationships ($n = 373$) Gender Male ($n = 373$) Age Range 28 to 29 years (Mean = 19.16 years) Race/Ethnicity African American = 4% Asian American/Pacific Islander = 4%	<ul style="list-style-type: none"> Men's use of pornography Men's gender role conflict Attachment styles Relationship quality Sexual satisfaction 	<ul style="list-style-type: none"> Pornography use was negatively associated with men's relationship quality¹ and sexual satisfaction ². Gender role conflict was theorised to directly and indirectly link to relational outcomes via attachment styles and pornography use. 	¹ $r = .19$ ² $r = .10$

		Latino = 1% White = 89% Multiracial = 1% Other = 1% Religion Unspecified			
Muusses, Kerkhof & Finkenauer (2015) The Netherlands	Method Questionnaires Analysis Inferential statistics	Population Newly-wed, heterosexual couples ($n = 974$; 487 couples) Gender Female ($n = 487$) Male ($n = 487$) Age Female = 31.20 years (mean) Male = 34.07 years (mean) Race/Ethnicity Unspecified Religion Unspecified	<ul style="list-style-type: none"> • Use of sexually explicit internet material (SEIM) • Dyadic Adjustment Scale • Passion subscale of Perceived Relationship Quality Components (PRQC) Inventory 	<ul style="list-style-type: none"> • Data was collected from both partners in the relationship. • Longitudinal design to assess how much adjustment* and sexual satisfaction account for change in SEIM over time. • SEIM use was associated with a decrease in adjustment¹ and sexual satisfaction² among husbands but not wives. • Greater SEIM use among husbands was not associated with a decrease in their wives' adjustment and sexual satisfaction. • Greater SEIM use among wives was not associated with an increase in adjustment and sexual satisfaction in husbands. • Husband's adjustment was negatively associated with future use of SEIM³ (only marginally). 	¹ $r = .25$ ² $r = .24$ ³ $r = .08$

Staley & Prause (2011) United States	Method Experimental Analysis Inferential statistics	Population Undergraduate, heterosexual, couples ($n = 88$; 44 couples) Gender Female ($n = 44$) Male ($n = 44$) Age Mean = 25 years Race/Ethnicity White = 79.5% Other = 20.5% Religion Religious affiliation = 86.4%	<ul style="list-style-type: none"> Positive and Negative Affect Schedule (PANAS) short form Dyadic Adjustment Scale (DAS) In-Session Repeated Questionnaire (ratings of increased heart rate, anxiety, sexual arousal, desire to be close to partner and desire to masturbate) 	<ul style="list-style-type: none"> Couples viewed neutral, exciting and sexual films both individually and together and were required to rate their responses to each. Watching sexual films increased positive feelings and the desire to be close to one's partner¹. Whether the films were viewed alone or together did not influence outcome. 	¹ $\eta^2_p = .17$
Yucel & Gassanov (2010) United States	Method Online survey Analysis Inferential statistics	Population Married, heterosexual couples ($n = 866$; 433 couples)	<p>Dependent variables:</p> <ul style="list-style-type: none"> Satisfaction with the sexual relationship 	<ul style="list-style-type: none"> Research focused on sexual satisfaction among married couples within the framework of the Interpersonal Exchange Model of Sexual Satisfaction (IEMSS). 	¹ $r = .16$ ² no effect size specified

		Gender Female (<i>n</i> = 433) Male (<i>n</i> = 433) Age Range 20-59 years Race/Ethnicity White = 70% Unspecified = 30% Religion Not specified	Independent variables: <ul style="list-style-type: none"> • Infidelity • Pornography consumption • Marital satisfaction • Sexual frequency • Relationship demographics 	<ul style="list-style-type: none"> • 12% of husbands reported that their wives used pornography compared to 30% of wives who reported their husbands use pornography. • Based on wives' reports, husbands who use pornography reported lower sexual satisfaction¹. No such relationship was found between wives' pornography use and sexual satisfaction (based on husbands' reports). • Sole consumption was negatively associated with sexual satisfaction for both wives and husbands, suggesting pornography to be detrimental to the couple when consumed as a solitary activity² 	
Daneback, Træen & Månsson (2009) Norway	Method Postal questionnaires Analysis Inferential statistics	Population Heterosexual couples (<i>n</i> = 796; 398 couples) Gender Female (<i>n</i> = 398) Male (<i>n</i> = 398) Age Range 22-67 years Race/Ethnicity Unspecified Religion Unspecified	<ul style="list-style-type: none"> • Use of Pornography to Enhance Sex-Life • Online Pornography • Communication about Sexual Issues • Frequency of Sexual Problems 	<ul style="list-style-type: none"> • 15% of couples reported use of pornography as a sexual aid to enhance their sexual relationship¹. • These couples were viewed as having an "open erotic climate" characterised by open communication about sexual desires and less dysfunction. • 61.7% of couples reported not to use or access pornography. These couples were found to have a "less permissive erotic climate" but did not seem to have any dysfunctions. • 34.4% of couples consisted of one partner who used pornography. These couples seemed to have a "permissive erotic climate" but were also characterised by dysfunction. 	¹ <i>r</i> = .30

			<ul style="list-style-type: none"> Habitual Negative Perception of Oneself 		
Gwinn, Lambert, Fincham & Maner (2013) United States	Method Study 1: Experimental Study 2: Longitudinal	Study 1: Population Undergraduates in exclusive, heterosexual relationships ($n = 74$) Gender Female ($n = 47$) Male ($n = 27$) Age Range 18-25 years (Median = 19) Race/Ethnicity Unspecified Religion Unspecified Study 2: Population Undergraduates in exclusive, heterosexual	Study 1: <ul style="list-style-type: none"> Perceived Quality of Relationship Alternatives Relationship Length Relationship Satisfaction Study 2: <ul style="list-style-type: none"> Pornography Consumption Perceived Quality of Relationship Alternatives Relationship Length Relationship Satisfaction 	<ul style="list-style-type: none"> Examination of relationships between pornography use, perceptions of relationship alternatives and intimate extradyadic behaviour. Study 1: <ul style="list-style-type: none"> Participants in the sexually explicit priming condition (participants instructed to write about a pornographic video) reported higher quality of alternatives¹ (e.g. a different partner, being single). Study 2: <ul style="list-style-type: none"> Aimed to assess whether pornography consumption predicted changes in intimate extradyadic behaviour over time (assessed at Time 1, Time 2 [six weeks] and Time 3 [12 weeks]). Pornography consumption at Time 1 was found to predict intimate extradyadic behaviour (intimate behaviour with someone other than their partner) at Time 3² Perceptions of relationship alternatives at Time 2 statistically mediated the relationship between pornography consumption at Time 1 and Time 3 intimate extradyadic behaviour (unable to calculate effect size). 	¹ $r = .23$ ² $r = .32$

		relationships ($n = 291$) Gender Female ($n = 238$) Male ($n = 53$) Age Range 18-28 years (Median = 20) Race/Ethnicity Unspecified Religion Unspecified	<ul style="list-style-type: none"> • Intimate Extradynamic Behaviour • Sociosexual Orientation Inventory • Social Desirability Scale 		
Wright, Tokunaga & Bae (2014) United States	Method Survey Analysis Inferential statistics	Population Married, heterosexual couples, (Time 1 2006, Time 2 2008; $n =$ unspecified) Gender Female (62.9% Time 1, 49.1% Time 2) Male (37.1% Time 1, 50.9% Time 2) Age Mean = 47.03 years (Time 1)	<ul style="list-style-type: none"> • Pornography consumption • Extramarital sex attitudes 	<ul style="list-style-type: none"> • Exploration into whether people who consume pornography have a more positive attitude towards extramarital sex. • Pornography consumption was found to be associated with positive extramarital sex attitudes both at Time 1¹ and Time 2². • Earlier extramarital sex attitudes did not contribute to the prediction of later pornography consumption. • Results believed to have important implications for extramarital sex behaviour and its role in divorce. 	¹ $r = .16$ ² $r = .12$

		Mean = 49.94 years (Time 2) Race/Ethnicity White = 82.5% (Time 1) Other = 17.5% (Time 1) White = 82.5% (Time 2) Other = 17.5% (Time 2) Religion Unspecified			
Stewart & Szymanski (2012) United States	Method Surveys Analysis Inferential statistics	Population Women in romantic, heterosexual relationships ($n = 308$) Gender Female ($n = 308$) Age Range 18 to 29 years (Mean = 18.81 years)	<ul style="list-style-type: none"> Perceived Partner's Pornography Use Scale Rosenberg Self Esteem Scale Dyadic Adjustment Scale (DAS) Sexual Satisfaction 	<ul style="list-style-type: none"> Greater perceptions of frequency of pornography use by a male partner was negatively correlated with relationship quality¹. This was not significantly related to sexual satisfaction. If partner's use perceived as problematic, this was found to be negatively correlated with self-esteem², relationship quality³ and sexual satisfaction⁴. 	¹ $r = .16$ ² $r = .13$ ³ $r = .21$ ⁴ $r = .25$

		Race/Ethnicity African American = 8% Asian American = 3% White = 86% Multi-racial = 2% Other = 1% Religion Unspecified	Subscale of Multi-Dimensional Sexuality Questionnaire		
Resch & Alderson (2013) Canada	Method Online questionnaires Analysis Inferential statistics	Population Women in romantic, heterosexual relationships ($n = 340$) Gender Female ($n = 340$) Age Range 18 to 41 years (Mean = 21.17 years) Race/Ethnicity White = 71.5% Asian = 17.4%	<ul style="list-style-type: none"> Couples Satisfaction Index (CSI) Pornography Distress Scale (PDS) 	<ul style="list-style-type: none"> Women who reported that their partners were honest about their pornography use scored higher levels of perceived relationship satisfaction, with honesty explaining 6.6% of the variation in relationship satisfaction¹. Mutual pornography use between partners was not reported to be associated with increase relationship satisfaction. 	¹ $r = .29$

		Mixed race = 5.9% Other = 2.4% Middle Eastern = 1.8% Hispanic = 0.6% Aboriginal = 0.4% African = 0.3% Religion Other = 28.2% Catholic = 23.8% Christian = 21.2% Agnostic = 15.3% Protestant = 5.9% Muslim = 3.8% Hindu = 0.9% Mormon = 0.6% Jewish = 0.3%			
Maddox, Rhoades & Markman (2009) United States	Method Survey Analysis Inferential statistics	Population Unmarried individuals in romantic relationships ($n = 1291$) Gender Female ($n = 816$)	<ul style="list-style-type: none"> Sexually explicit material (SEM) viewing frequency Communication Danger Signs Scale 	<ul style="list-style-type: none"> Individuals who reported to have never viewed SEM were found to have higher relationship quality on all indices than those who viewed SEM alone only, together only or together/alone. <ul style="list-style-type: none"> Negative communication (alone only¹ & together/alone²) Relationship adjustment (alone only³) Dedication (alone only⁴ & together/alone⁵) 	¹ $r = .13$ ² $r = .13$ ³ $r = .11$ ⁴ $r = .15$ ⁵ $r = .11$ ⁶ $r = .10$ ⁷ $r = .21$ ⁸ $r = .16$

		<p>Male ($n = 475$)</p> <p>Age</p> <p>Range 18-34 years (mean = 25.51 years)</p> <p>Race/Ethnicity</p> <p>White = 75.9%</p> <p>African American = 14.3%</p> <p>Asian = 3.3%</p> <p>Native American = 1.1%</p> <p>Native Hawaiian = 3.0%</p> <p>Multi-ethnic = 3.8%</p> <p>Other = 1.3%</p> <p>Religion</p> <p>Unspecified</p>	<ul style="list-style-type: none"> • Dyadic Adjustment Scale • Dedication Scale (Revised Commitment Inventory) • Sexual Satisfaction • Infidelity 	<ul style="list-style-type: none"> ○ Sexual satisfaction (alone only⁶, together only⁷ and together/alone⁸) • Those in the no-SEM group were the least likely to commit acts of infidelity then all other groups⁹ • Those who viewed SEM only with their partners reported more dedication¹⁰ and higher sexual satisfaction than those who viewed SEM alone¹¹ or together/alone¹² 	<p>⁹$r = .18$</p> <p>¹⁰$r = .15$</p> <p>¹¹$r = .11$</p>
<p>Bridges & Morokoff (2010)</p> <p>United States</p>	<p>Method</p> <p>Survey</p> <p>Analysis</p> <p>Inferential statistics</p>	<p>Population</p> <p>Heterosexual, couples ($n = 434$; 217 couples)</p> <p>Gender</p> <p>Female ($n = 217$)</p> <p>Male ($n = 217$)</p> <p>Age</p>	<ul style="list-style-type: none"> • Sexual media use • Depression (Patient Health Questionnaire PHQ-9) 	<ul style="list-style-type: none"> • Men's frequency of sexual media use related negatively to their own general dyadic satisfaction¹. • Women's frequency of sexual media use related positively to men's general dyadic satisfaction². • Significant correlations were found between men's sexual media use and depression³ and sexual functioning⁴. 	<p>¹$r = .29$</p> <p>²$r = .25$</p> <p>³$r = .17$</p> <p>⁴$r = .14$</p> <p>⁵$r = .12$</p> <p>⁶$r = .27$</p>

		Range 18 years and above (Mean = 35.56 years) Race/Ethnicity Caucasian = 86.4% African American = 2.5% Asian = 3% Latino = 2.1% Multi-ethnic = 2.1% Other = 3.7% Native American = 0.2% Religion Unspecified	<ul style="list-style-type: none"> • Sexual functioning (National Health and Life Survey) • Relationship satisfaction (Dyadic Adjustment Scale DAS 7) • Sexual satisfaction (Index of Sexual Satisfaction) 	<ul style="list-style-type: none"> • Women's use of sexual media was associated with men's higher relationship satisfaction scores⁵ • Women's SEM use did not relate significantly to her general dyadic satisfaction. • Men's use was not found to significantly decrease women's satisfaction within the dyad as originally predicted • Men and women who used sexual media with a partner reported significantly higher relationship satisfaction than individuals who used sexual media for solo activity⁶. • No significant differences emerged between the two groups, irrespective of gender, for sexual satisfaction or sexual functioning. 	
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Note: where calculable, effects sizes are reported next to findings for *r*. Cohen (1988) suggests $r = 0.10$ indicates a small effect size, $r = 0.3$ a moderate effect size and $r = 0.50$, a large effect size.

* Relationship adjustment, as measured by the Dyadic Adjustment Scale (Spanier, 1976), refers to relationship satisfaction, based on dyadic consensus (degree to which the couple agree or disagree); dyadic satisfaction (perceived stability, conflict management); affectional expression and dyadic cohesion (frequency of positive interaction between the couple).

Table 3

General characteristics and key findings of qualitative studies

Author(s) and Location	Sample Characteristics	Data Collection	Analysis	Epistemology	Summary Points and Key Findings
Bergner & Bridges (2011) United States	Population Women in romantic relationships ($n = 100$) Gender Female (100%) Age Unspecified Race/Ethnicity Unspecified Religion Unspecified	Letters posted to internet boards regarding partner's pornography consumption; Interpreted by two investigators; Consensus required regarding primary themes	Unspecified but query thematic analysis	Unspecified	<ul style="list-style-type: none"> • Discovery of partner's pornography use as a traumatic event leading to alterations in perception of relationship, self and partner. • New view of the relationship: <ul style="list-style-type: none"> ◦ Expressions of betrayal; feeling less desirable to partner; exclusion from intimacy; lessening of investment in well-being of beloved; not feeling understood; shame. • New view of self: <ul style="list-style-type: none"> ◦ Feeling sexually undesirable, worthless, weak and stupid. • New view of partner: <ul style="list-style-type: none"> ◦ Viewing partner as a "pervert"; reappraisal of partners as liars, unloving and selfish; failure as a "true husband and partner". • Dichotomy between those who viewed their partners' as sick and therefore not fully responsible, and those who viewed their partners as "fully responsible wrongdoers".

Benjamin & Tlusten (2010) Israel	Population Women in heterosexual relationships ($n = 20$) Gender Female (100%) Age Range 22 to 53 years Race/Ethnicity Jewish = 100% Religion Jewish = 100%	Semi-structured interviews; Transcribed	Phenomenological analysis	Not specified	<ul style="list-style-type: none"> • Exploration of whether pornography strengthens intimacy as an aspect of self-exploration and mutual pleasure or whether it weakens intimacy through separate space. • Three main themes emerged: <ol style="list-style-type: none"> 1. Individual space – Pornography viewed as good outlet by those women who legitimise their partner's solo sexual activity. 2. If perceived that sexual activity should always be shared, women became more doubtful about pornography use. 3. Relationship work ethics – working alone and with partner to improve relationship through fostering passion and strengthening emotional bond.
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Table 4

Assessment of methodological quality using the Mixed Methods Assessment Tool (MMAT)

Study	Methodological Quality Criteria							
	Criteria for qualitative studies				Criteria for quantitative studies			
	1.1*	1.2	1.3	1.4	2.1	2.2	2.3	Overall score
Bergner & Bridges, 2002	*							*
Benjamin & Tlusten, 2010	*	*	*					***
Szymanski & Stewart, 2014						*		*

Bridges & Morokoff, 2011						*	*		**
Maddox, Rhoades & Markman, 2011							*		*
Gwinn, Lambert, Fincham & Maner, 2013						*			*
Daneback, Træen & Månsson, 2009									
Muusses, Kerkhof & Finkenauer, 2015						*	*		**
Wright, Tokunaga & Bae, 2014							*		*
Staley & Prause, 2012					*		*		**
Yucel & Gassanov 2010					*	*	*		***
Stewart, Szymanski, 2012						*			*
Resch & Alderson, 2013						*			*

Note. ¹Quality criteria from MMAT. (1.1) Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective), (1.2) Is the process for analysing qualitative data relevant to address the research question (objective), (1.3) Is appropriate consideration given to how findings relate to the context, e.g., the setting, in which the data were collected, (1.4) Is appropriate consideration given to how findings relate to researchers' influence, e.g., through their interactions with participants, (1.5) Other areas of bias, (2.1) Are participants (organisations) recruited in a way that minimizes selection bias, (2.2) Are measurements appropriate (clear origin, or validity known, or standard instrument; and absence of contamination between groups when appropriate) regarding the exposure/intervention and outcomes, (2.3) In the groups being compared (exposed vs. non-exposed; with intervention vs. without; cases vs. controls), are the participants comparable, or do researchers take into account (control for) the difference between these groups, (2.4) Are there complete outcome data (80% or above), and, when applicable, an acceptable response rate (60% or above), or an acceptable follow-up rate for cohort studies (depending on the duration of follow-up), (2.5) Other areas of bias.

²The quality score is presented using descriptors *, **, ***, and ****. For qualitative and quantitative studies, this score is the number of criteria met, varying from 25% (*) - one criterion met to 100% (****) - all criteria met.

Measures

Except for two studies, the articles in the review used validated measures that were common to the field. However certain scales, as indicated by their titles and focus, appeared to be balanced towards distress and negative outcomes. For example, the “Pornography Distress Scale” or “Depression Health Questionnaire”. This might be indicative of the apriori agenda or bias towards the topic.

Many of the measures used rating scales to record participant’s responses. The use of Likert type ratings attempt to allow for more nuanced responses than just ‘yes’ or ‘no’. They are still restrictive and fail to quantify what a meaningful difference would be on these numeric scales.

Statistical analyses

Most the studies utilised correlation and regression analyses in an attempt to evaluate relations between the different variables in question. However, it is not possible to infer causation through this type of analysis. As a result, some of the studies were making bold claims about the significance of certain relationships without factoring in this major limitation or acknowledging the role of other variables. This is further evidenced by the magnitude of effect sizes which range from small to moderate ($r = 0.08$ to 0.30 ; see Table. 2). Effect size refers to the quantitative strength of the relationship being measured. Thus, studies are not able to support strong inferences about impact or effects of pornography-use.

Approximately half of these articles (Bridges & Morokoff, 2011; Yucel & Gassanov, 2011; Wright, Tokunaga & Bae, 2014, Maddox, Rhoades & Markman, 2011, Muusses, Kerkhof & Finkenauer, 2015) attempted to address this threat to internal validity by referring to, or controlling for certain variables. These included gender, religiosity or relationship length. Despite this acknowledgement, the issue of temporality was not considered and would cite pornography use as an antecedent to the relational outcomes in question. Two studies included a longitudinal component in their design and analyses (Staley & Prause, 2010;

Muusses et al. 2015) to address this limitation. However, they made powerful statements about the influence of pornography without acknowledging alternative, unmeasured, explanatory factors. An alternative hypothesis could be that poor relationship leads to a decrease in sexual intimacy between the dyad, prompting the need for other methods of sexual relief (i.e. through the use of pornography).

Qualitative studies

Sample population and selection methods

The two qualitative studies included in the review both examined women and pornography but were very distinct in their approach. One focused on women's views towards their partner's pornography use and one focused on women's own use of pornography. One study (Bergner & Bridges, 2002) sampled their population from internet message boards, a place in which women distraught by the discovery of their partner's pornography use, would post and share their experiences with other women. This introduced an inherent bias towards viewing pornography negatively.

Context and reflexivity

Both studies made no mention to their epistemological stance or other factors that might influence the reflexivity of the authors i.e. the degree to which they reference their own subjective biases and how this might affect the interpretation of their findings. Benjamin & Tlusten (2010), whose study was conducted with Jewish women in Israel, did however make explicit reference to the culture and context within which the study was set. They set out to test the relevance of Cancian's (1989, as cited in Benjamin & Tlusten, 2010) conceptualisation of women as dependent on their partners to substantiate a 'normal' identity.

Key findings

Definitions of pornography

No operational definition of pornography was consistent across the included studies. No definition was provided in a number of the papers (Staley & Prause, 2012; Yucel & Gassanov, 2010; Gwinn et al., 2013; Bergner & Bridges, 2002) and others referenced the subjective nature of pornography, asking participants to provide their own definition (Benjamin & Tlusten, 2010). The remaining studies defined pornography as variants of; “media/written or pictorial matter, depicting nudity and explicit sexual acts, used or intended to increase sexual arousal/feelings” (Maddox et al., 2011; Stewart & Szymanski, 2012; Wright et al., 2014). One study used ‘sexually explicit material (SEM)’ as an alternative to pornography (Musses et al., 2015) and the final study used “visual sexual stimuli (VSS)” (Staley & Prause, 2012). This variability in terms of definitions reduced direct comparability between papers.

Relationship quality

A main theme that was consistent across many of the studies related to the possible impact of pornography on relationship quality. The results were variable and synthesis of findings is complicated by the heterogeneity of methodologies, definitions and samples. Methodological quality was generally poor except for two studies (Yucel & Gassanov, 2010; Benjamin & Tlusten, 2010) and all the quantitative studies demonstrated small to moderate effect sizes ($r = .08$ to $.29$). Certain studies looked at relationship quality in the context of solo versus mutual consumption of pornography. Others looked at pornography consumption by one or both members of the dyad, accounting for gender differences. Some reported a negative impact of pornography on relationship quality (Stewart & Szymanski, 2012; Szymanski & Stewart, 2014; Muusses et al., 2015, Bridges & Morokoff, 2010; Bergner & Bridges, 2002). These results were either recorded from the perspective of the woman, the perspective of the man or the perspective of both. It is important to note that not all studies reported negative outcomes. For instance, in one study which initially reported a negative association (Bridges &

Morokoff, 2010), when used in conjunction with their partner, pornography use was found to be positively associated with dyadic adjustment and quality. This suggests that mutual as opposed to solo use might possibly account for the variation in the results. One study suggested another important variable that might account for this association; male partner's honesty regarding pornography use. This was found to positively influence relationship quality (Resch & Alderson, 2013). Further studies reported the benefits of pornography consumption on relationship quality through strengthening emotional bonds and increasing desire to be close to one's partner (Benjamin & Tlusten, 2010; Staley & Prause, 2011).

Sexual satisfaction

A comparable theme, subject to similar complexities as noted above, concerns the associations between pornography use and sexual satisfaction in couples. The results from studies which attempted to measure sexual satisfaction appeared more balanced with some finding the use of pornography enhanced sexual satisfaction and others demonstrating a negative impact on sexual satisfaction. A common feature of the studies that reported a positive association between pornography and sexual satisfaction related to mutual use of pornography or the use of pornography as a sexual aid. Daneback et al., (2009) and Maddox et al., (2009) described how when used with their partner, pornography use led to higher satisfaction. However, when used for solo purposes, porn-use was associated with lower sexual satisfaction (Yucel & Gassanov, 2010; Daneback et al., 2009). Other studies examining this variable reported associations between pornography use and lower sexual satisfaction (Muusses et al., 2015; Szymanski & Stewart, 2014; Yucel & Gassanov, 2010). Gender differences were accounted for and controlled for in most of the studies. Again, studies were of generally poor quality with small to moderate effect sizes ($r = .10$ to $.30$).

Attitudes towards infidelity

A final key finding relates to the associations between pornography use and attitudes towards relationship alternatives and extra-dyadic/marital activity.

Studies suggested that pornography consumption would predict more positive attitudes towards infidelity, increase likelihood of extra-marital activity, as well as perceiving higher quality of relationship alternatives (i.e. “the attractiveness of the best obtainable alternative to a relationship”; Rusbult, 1980, pp. 172; Wright et al., 2014; Maddox et al., 2009; Gwinn et al., 2013). These findings were perceived as having significant implications for extra-marital activity and its role in divorce. These conclusions were based on small to moderate effect sizes ($r = .12$ to $.32$). Each of the reported studies were correlational in nature and therefore did not consider the causal direction of these findings or alternate hypotheses. These may include: dishonesty, the use of porn as a result of the other partner being disinterested, or seeking other partners for the same reason.

Discussion

The aim of this systematic review was to evaluate the role of ‘normative’ pornography consumption in adult romantic relationships. All relevant and included studies are from within the last 15 years suggesting a growing interest in this area. The studies acknowledged a range of perspectives; the man, the woman and both. However, the search only retrieved heterosexual dyadic studies. This may suggest apriori assumptions regarding differences between heterosexual and homosexual use of pornography, which was beyond the scope of this review. The inclusion of female perspectives, a population relatively under-represented in this field (Manning, 2006) is a strength of the current literature, as it is acknowledging the changing demographic of pornography consumers.

The findings were inconsistent and variable but uncovered three broad themes; the association between pornography-use and relationship quality, sexual satisfaction and infidelity. Some reported the detrimental impact of pornography across several relational domains whereas some described a growing acceptance of its use within the intimate partnership.

The methodological quality according to MMAT was assessed as being poor across most of the research. The ability to conduct robust, quality research in the field is arguably very challenging due to the controversial nature of topic that

is subject to cultural and societal norms and discourses. The research appears suggestive of underlying biases that pornography should be seen as something shameful, hidden and wrong.

A distinction was made between solo and mutual use of pornography. Solo use was found to have negative associations with relationship quality and relationship satisfaction. When kept secret from their partner, discovery of the activity was comparable to infidelity, with individuals feeling betrayed and that their partners had been unfaithful (Bergner & Bridges, 2002). Further explanations centred on partner's feeling that they were not meeting the other's sexual needs or that they did not live up to the fantasy depicted in the sexual content. This seemingly provides support for the IEMSS model previously mentioned; that the sexual relationship between 'real-life' partners is not as rewarding as the satisfaction experienced from viewing pornography. It is important to note that the studies were limited by the populations they drew their samples from. For example, in the Bergner and Bridges study, they sampled women distressed by their partner's pornography use. It is therefore not possible to decipher whether the negative effects were a direct result of the pornography use, or more due to the deception and dishonesty conveyed by their male partners by concealing their pornography use. For example, a study by Peterson (1996) found that partner's use of deception was significantly associated with lower relationship satisfaction. This highlights how deception might be the problem, not the pornography use.

Mutual use was associated with an "open erotic climate" (Daneback et al., 2009) whereby partners felt able to communicate openly and explore their sexuality in a consensual fashion. It might be expected that those who are satisfied sexually in their relationships would also report greater overall quality (Byers, 2005). These positive results attempt to address the significant imbalance towards pornography being perceived as a significant threat to relationship stability and perhaps reflect a growing acceptance of pornography use within the general population (Carroll et al., 2008)

All the studies, with the exception of one (Benjamin & Tlusten) did not allow for in depth explorations for how their participants define pornography or what their

attitudes were towards it. The over-representation of correlational methodology in the review prevents definite answers related to the causal sequences proposed in the different studies (Stewart & Szymanski, 2012). Many failed to acknowledge alternative, plausible explanations or the bidirectional nature of the relationships. For example, pornography consumption may be a consequence of poor relationship quality or sexual satisfaction, not the cause.

The impact of gender (Malamuth, 1996; Carroll et al., 2008) and other pertinent variables such as religiosity were recorded in some of the studies but their role as potential confounding factors were not discussed. For example, Regenerus (2007, as cited in Nelson, Padilla-Walker & Carroll, 2010) examined the role of religion in shaping American adolescents' sexual values and found it to predict negative attitudes towards pornography use. The perspectives of the authors (e.g. pro, apathetic or anti-pornography) were infrequently addressed or highlighted, which was a common limitation for all the research included in the review.

Limitations

There are a number of limitations to this review. Firstly, the choice to exclude studies that consisted of participants under the age of 18, conflicts with the goal of studying 'normative' samples. It is acknowledged that adolescents start consuming pornography as young as 12 years old (Brown & L'Engle, 2009) and there is no way of operationally defining what constitutes a committed, romantic relationship. As such, several potentially useful and informative studies had to be excluded (Lambert, Negash, Stillman, Olmstead & Fincham, 2012; Poulsen, Busy & Galovan, 2013) to have a fully systematic approach.

Further exclusion criteria included addictive or problematic use or extreme content of the pornographic materials. These criteria, although implied, were rarely explicitly stated in the studies as they failed to define the content or genre of pornography under examination. Some attempted to record frequency of those accessing sexually explicit materials, but again failed to define to what point this

might be considered problematic. However, adhering to exact and objective inclusion/exclusion criteria may have limited the studies considered for inclusion.

All included studies were published in peer-reviewed journals. Although this implied a certain threshold of quality, it may have limited the results and introduced publication bias. Inclusion of grey and un-peer reviewed literature may have yielded further relevant articles.

Another limitation is related to the choice of quality assessment tool. The MMAT consistently rated the studies as being of poor methodological quality. However, scoring did not consider the ambiguity allowed by having “Can’t tell” as a response option. Star ratings may be biased towards the studies being perceived as poorer quality as several criteria were scored using the “Can’t tell response”. A more sensitive measure of quality might have allowed for a more nuanced assessment. The MMAT was also limited by its design categories. Most of the studies in the review utilised cross-sectional, single group, survey based methodologies. They therefore did not fully meet the criteria for being a non-randomised quantitative study nor a descriptive study. A calculated judgement was made by the author as to which category was the best fit, and this remained consistent throughout the review.

Conclusions

Due to the variability in methodology, biases within the samples and lack of generalisable findings, it is difficult to draw firm conclusions or confirm the existence of any linear relationships. Pornography is not a neutral subject and highly value laden. Although some studies might point to increasing acceptance, many still conclude that its effects are far more negative than positive. This may reflect cultural contexts or the political climate. For example, in 2013 the Prime Minister of the United Kingdom, David Cameron implemented a scheme in which online pornography would be blocked by default, stating that pornography was “corroding childhood” (BBC, 2013). This suggests participant’s political identity may have been an important variable to consider. Within such a climate, heightened feelings of shame or secrecy may be more prevalent.

Future research should endeavour to examine the direction of the associations between pornography-use and relational outcomes through longitudinal designs. This might help establish whether pornography use preceded relational problems (if any), or is a result of difficulties within the relationship e.g. lack of communication or not having sexual needs met. Broader samples to allow for more generalisability should be included, as well as clearly defined, operationalised variables. Further qualitative research would also be of benefit, to further explore the relationships uncovered in the studies within the wider context of the dyad i.e. what other variables might be influencing the outcomes in question. Future studies might also wish to draw on established attributes and behaviours linked to relational outcomes such as communication and honesty (Spanier, 1976) and investigate to what extent these mediate the association between pornography consumption.

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Journal Article

Net Neutrality: A Lack of Association Between Pornography Exposure and Sexual Functioning and Well-Being

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Abstract

Using an opportunistic adult sample ($n=272$) and a cross-sectional questionnaire design, this study examined the effects of online sexually explicit material (oSEM) consumption on a number of psychosocial outcomes. These included: sexual satisfaction, body satisfaction, sexist attitudes and psychological well-being. Perceived realism of oSEM (the extent to which it is believed to be a realistic portrayal of sexual experience) was assessed as a mediator of these potential relationships. Furthermore, family communication about sex was investigated to determine whether this moderated perceived realism. The results demonstrated no significant relationships between oSEM-use and the psychosocial outcomes in question. However, a significant indirect effect of oSEM-use on ambivalent sexism, mediated by perceived realism, $b = .005$, 95% BCa CI [.001, .010], $p = .023$, and a significant indirect effect of oSEM-use on ambivalent sexism toward men, mediated by perceived realism, $b = .004$, 95% BCa CI [.001, .009], $p = .036$, was revealed, both with a small effect size. This relationship was not found to be moderated by family communication about sex. Overall, these findings neither support nor oppose a negative or positive influence of oSEM on the psycho-social outcomes under examination. This suggests oSEM has a negligible role in the individual's current sexual functioning and well-being.

Key words: online sexually explicit material, satisfaction, well-being, sexist attitudes, perceived realism, media effects

Introduction

Online sexually explicit material (oSEM) has been defined as, “material which depicts sexual activity in obvious and unconcealed ways and is easily available on the Internet” (Muusses, Kerhof & Finkenauer, 2015, pp.77). With the advent of the internet, people now have unprecedented access to accessible, anonymous and affordable online sexual content (Cooper, 1998). Within the adult population, international studies consistently report high rates of oSEM-use in the range of 50% to 99% among men and 30% to 86% among women (Hald, Seaman & Linz, 2012). A popular website streaming free pornographic content reported 21.2 billion visits to its site in 2015 with the United Kingdom ranked second, behind the United States, in terms of most visitors (PornHub, 2016). Demographics statistics collected by this website revealed that the average age of those accessing online pornography in the United Kingdom was 34.8 years, with the highest proportion of its viewers aged between 18 and 24 (PornHub, 2016). This age group, who have grown up with these technological innovations, have been dubbed “digital natives” (Livingstone & Smith, 2014). These “digital natives” can also be defined as the first generational cohort to have developed through adolescence coinciding with this proliferation of online pornography. For this reason, we have labelled this group “Generation Sex”.

Generation sex: Why the fear?

Research suggests that the use of sexually explicit material is a normative experience amongst adolescents who are following conventional developmental trajectories regarding sexual curiosity and exploration (Sabina, Wolak & Finkelhor, 2008). A review conducted by Horvath Alys, Massey Pina, Scally & Adler¹, (2013) suggested that approximately 43% to 99% of children (those aged 17 and under) reported considerable exposure to pornography. The prevalence and frequency with which young people are using oSEM has contributed to widespread concerns regarding the influence of such content on the development and sexualisation of young people.

¹ See extended background section 1.2 for fuller discussion

A review by Owens, Behun, Manning and Reid (2012) assessing the impact of oSEM on adolescents' attitudes, beliefs, self-concept and social development concluded that youths who consume pornography may develop unrealistic sexual values and beliefs. These included higher levels of permissive sexual attitudes, sexual preoccupation and sexual experimentation.

The literature does not clearly elucidate why this fear is pervasive in the present day when pornography has been around for centuries (Garlick, 2011). A possible hypothesis is that the internet provides the medium through which young people are able to consume sexual media in a way they were not able to previously (Garlick, 2011). Their assumed susceptibility may be related to this increased exposure or more frequent use of pornographic materials (Flood, 2009). oSEM's influence might be considered even more powerful if initial exposure precedes real-life sexual experience (Peter & Valkenburg, 2010). This is supported by models of sexual socialisation such as *Sexual Scripts Theory*² (Simon & Gagnon, 1986). This posits that oSEM has the power to influence the individual's scripts which structure how they make sense of sexual encounters. Alternatively, it has been argued that young people lack the sexual experience, maturity and critical thinking skills to comprehend the sexually explicit media they may purposefully or inadvertently encounter (Strasburger, 2004). As such, they may be more susceptible to its potential influence (Horvath, et al., 2013). Media effects theories such as the Differential Susceptibility Model of Media Effects³ (DSMM; Valkenburg & Peter, 2013), support this hypothesis and argue that effects are influenced by the developmental stage of the individual and are greatest in childhood. These "developmental windows" are believed to be able to shape life-enduring patterns of behaviour and functioning (Malamuth, 1999). Earlier exposure to oSEM might therefore account for this cohort's speculated increased vulnerability to the influence of oSEM (Horvath, et al., 2013).

*oSEM effects*⁴

² See extended background section 1.6.1.1 for a more in depth discussion of sexual script theory

³ See extended background section 1.6.2.2 for further information on the DSMM

⁴ For a fuller discussion of the effects of oSEM, see extended background section 1.2

The academic study of oSEM generally appears weighted to the exploration of harm (Smith & Atwood, 2014). There is little critical consideration of the nature and direction of any such effects or the potential benefits that viewing pornography might have. Research interested in current normative consumption of pornography in the general adult (non-clinical) population revealed principally negative findings. These included relationships between mainstream pornography use and the furthering of sexist attitudes and behaviours; decreased satisfaction with one's own or partner's body and sexual performance; and "irresponsible" sexual behaviour (Döring, 2009; Harkness, Mullan & Blaszczyński, 2015).

A general critique of this previous research lies in; the neglect of identification of potential mediating/moderating factors; selective measurement of 'negative' outcomes; and general tendency to interpret data as simple causal and bivariate relationships. As such, research to date paints an unclear picture of the impact that exposure to oSEM has on people's psychosocial and current functioning (Peter & Valkenburg, 2010).

Psychosocial outcomes⁵

There are many psychosocial outcomes of interest explored in the previous literature. Enhancing psychological well-being and functioning is a central concern for clinicians in the field of psychology. The World Health Organisation (WHO) declared positive mental health as the "foundation of well-being and effective functioning for both the individual and the community" (WHO, 2004, p.10). It also states the importance of psychological well-being in the development and capacity for mutually satisfying and enduring relationships (WHO, 2001). As such, our research has chosen to focus on psychosocial variables key for positive mental health. These include: sexual satisfaction, sexist attitudes, body satisfaction and psychological well-being.

⁵ See extended background 1.4 for further discussion

Sexual satisfaction⁶

Sexual satisfaction has shown to be positively associated with life satisfaction, relationship intimacy and partner communication about sex (Štulhofer, Buško & Brouillard, 2011). The WHO views positive sexual functioning as “a central aspect of being human” (WHO, 2002). The relationship between oSEM-use and sexual satisfaction is currently unclear. Some studies have suggested that viewing of sexual media reduces various dimensions of sexual satisfaction (Peter & Valkenburg, 2009). Peter and Valkenburg (2009) examined the extent to which adolescent’s exposure to oSEM impacted satisfaction within sexual relationships. They argued that without the necessary experience with which to compare their own sexual encounters, young people may feel they cannot live up to what is depicted within oSEM and consequently feel less sexually satisfied (Strasburger & Donnerstein, 1999). Other studies have revealed that when used in a mutual fashion, oSEM contributed to an “open erotic climate” (Daneback, Træen & Månsson, 2009; Maddox, Rhoades & Markman, 2009) and was associated positively with sexual satisfaction. Variations in findings could be attributed to methodological variations including study design and participant samples between the studies.

Sexist attitudes⁷

It has been argued that sexist attitudes are associated with a range of negative outcomes including; hostility and discrimination towards women; and acceptance of “rape myths” (Chapleau, Oswald & Russell, 2007). Sexist attitudes towards men, although less frequently investigated, have similarly been associated with maintaining gender inequality and legitimising discrimination (Rollero & Fedi, 2012). Social learning theory (also referred to as social cognitive theory)⁸ (Bandura, 1977) postulates pornography’s influence in the development of these attitudes. Through the creation of role models and learning environments; gender stereotypes, sexual behaviours and attitudes are “normalised, encouraged and reinforced” (Hald, Seaman & Linz, 2012, pp. 10).

⁶ See extended background section 1.4.3 for further details on sexual satisfaction

⁷ See extended background section 1.4.1 for further information on sexist attitudes

⁸ See extended background section 1.6.2.1 for more details on social learning/cognitive theory

Research has examined pornography's role in the acquisition and maintenance of these attitudes (Brown & L'Engle, 2009; Hald, Malamuth & Lange., 2013). A core feminist critique⁹ of pornography details its contribution to the denigration of women and a distorted view of sexuality in which women are portrayed as merely sexual playthings (Dines, Jensen & Russo, 1997). This view appears to lack empirical support with research demonstrating either inconsistent or weak associations between pornography use and sexist attitudes (Hald et al., 2013). This failure to elucidate consistent results (Kohut, Baer & Watts, 2016), is possibly a reflection of the methodological differences or variations in the conceptualisations of sexism used in extant studies.

Body satisfaction¹⁰

Within a Social Comparison framework¹¹ (Festinger, 1954), body image has been found to be highly influential on an individual's self-esteem, with unfavourable media comparisons having detrimental results (Gupta, 2011). Little research has investigated the specific influence of oSEM on body satisfaction (Peter & Valkenburg, 2014). This is surprising given the ubiquity of body dissatisfaction amongst the young adult population and the frequency with which adolescents and adults are accessing oSEM. As with general media, content analyses of oSEM identified the portrayal of male and female bodies as unrepresentative of the general population (McKee, Albury & Lumby, 2008). Peter and Valkenburg (2014) found that increased exposure to oSEM increased men's dissatisfaction with their bodies; especially their stomachs, but not with their penis size. No effects were found for females. This study was limited by its small effect sizes and the failure to reflect the broader varieties of body types depicted in oSEM.

Psychological well-being

Previous research has attempted to demonstrate how the consumption of pornography impacts on a range of emotional and behavioural indicators related to well-being. Weaver, Weaver, Mays, Hopkins, Kannenburg and McBride (2011)

⁹ See extended background section 1.3 for a more detailed discussion of the dominant ideological perspectives relating to pornography

¹⁰ See extended background section 1.4.2 for further information on body satisfaction and oSEM

¹¹ See extended section 1.6.1.2 for details of social comparison theory

reported an association between oSEM-use and higher depressive symptoms, diminished mental and physical health and a poorer quality of life. Other reviews (Owens et al., 2012; Horvath, et al., 2013) reported numerous psychosocial outcomes influenced by pornography exposure but also concluded that more thorough research is needed to examine the mediating and moderating processes that underlie these effects.

oSEM and perceived realism¹²

Despite a growing body of research, there is still little known about the processes that underlie the relationships between oSEM-use and psychosocial outcomes. This hinders the formation or validation of theories relating to sexual media effects¹³. Theories of media effects including, *Social Cognitive Theory* (Bandura 1977, 2001), the *Cultivation Hypothesis* (Gerbner, Gross, Morgan & Signorelli, 1994) and the *Media Practice model* (Brown, 2000) attempt to clarify how an individual learns from, interacts with and is affected by the media they are exposed to. The *Differential Susceptibility to Media effects Model* (DSMM; Valkenburg & Peter, 2013), a more contemporary framework, organises the most prominent theories into a single, conceptually coherent model of the relationship between media and non-media variables.

In accordance with these media effect theories, the role of perceived realism has been highlighted as an important individual difference in the susceptibility to these sexual media stimuli (Baams, Overbeek, Dubas, Doornwaard, Rommes & Van Aken, 2015). Perceived realism refers to the extent that the consumers believe the material depicted in the sexually explicit material (SEM) is a realistic portrayal of sexual relationships (Hald & Malamuth, 2008). Research has suggested that when individuals perceive media depictions of behaviour as realistic, they may be more likely to imitate that behaviour (Peter & Valkenburg, 2010). Studies by Peter and Valkenburg (2006; 2010) demonstrated that increased exposure to oSEM increased the perceived realism of what they were viewing. This in turn, resulted in more instrumental attitudes towards sex.¹⁴ This provided evidence that

¹² See extended background section 1.7 for further discussion of perceived realism

¹³ See extended background section 1.6.2 for further details of media effects theories

¹⁴ Instrumental attitudes towards sex is defined as: sex that is a purely physical act in which one's own pleasure is the priority over any affectionate or relational aspects

perceptions of the realism of oSEM mediated the relationship between use of oSEM and instrumental attitudes towards sex.

These studies were some of the first to attempt to investigate the processes that underlie the effects of oSEM and suggest that perceived realism is an important concept which warrants additional research. Further consideration of the factors that influence the extent to which oSEM is perceived as realistic or not might help contribute to an advanced understanding of this mediating relationship.

Family communication about sex¹⁵

Research suggests that a young person's ability to communicate with their parents about sexual topics can influence their sexual development and subsequent behaviours (Richard, 2013). Richard, (2013) reported that those who experienced higher levels of parent-child communication about sex, would report less risky behaviours and increased romantic relationship quality. If a young person is unable to speak to their parents about sex through embarrassment, fear, or not wanting to disclose their desire for sexual exploration (Fox & IZANU 1980), they might look to alternative sources for information, including oSEM. In the absence of other sources of information or communication about sex, individuals may be more likely to consider oSEM to be a realistic and definitive model of sexual relationships, and concomitantly, more susceptible to be influenced by oSEM.

Aims of investigation

The World Health Organisation has called attention to the importance of positive sexual health; "a state of physical, emotional, mental and social well-being in relation to sexuality" (WHO, 2002). Research in this field has placed an emphasis on attempting to understand what serves to threaten or enhance the population's sexual health. Literature has previously conceptualised oSEM as a threatening entity; distorting and damaging the nation's sexuality. We wished to examine this

¹⁵ A further discussion on family communication about sex can be found in the extended background section 1.8

claim and investigate the relationship between oSEM-use and sexual satisfaction, sexist attitudes, body satisfaction and psychological well-being.

Framed by media effects theory and conducted with a liberal stance¹⁶, our research also aimed to examine the role of perceived realism in mediating any relationship between oSEM-use and the outcomes in question. We also wished to investigate this relationship further and determine whether family openness and communication about sex moderates the influence of perceived realism.

Given the above rationale, the questions we aimed to address were:

1. What is the relationship between (1) use of oSEM and (2) sexual satisfaction, sexist attitudes, body satisfaction, and psychological well-being?
2. What is the role of perceived realism in mediating the relationship between oSEM-use and these outcomes?
3. If perceived realism has a mediating effect, is it moderated by family communication about sex?
4. As a subsidiary aim, we wished to explore whether there were group differences between “Generation Sex”, and “non-Generation Sex” on measures of oSEM use, perceived realism and the psychosocial outcomes.

Methods¹⁷

Ethical Approval¹⁸

Ethical approval was sought and granted by Lincoln University’s ethics committee (see Appendix B).

Participants¹⁹

A mixed-gender sample of adults (aged 18 and above; n=272) was sampled opportunistically through the use of advertisements (see appendix C) around host universities and social media (Facebook and Twitter; Appendix D). Prior to taking

¹⁶ See extended background section 1.3 for a more detailed discussion of the dominant ideological perspectives

¹⁷ For additional information and discussion about the methods, please see extended methods section 2

¹⁸ See extended methods section 2.4 for further ethical considerations

¹⁹ See extended methods section 2.6 for further discussion of inclusion and exclusion criteria

part, all participants were provided with information about the study and required to provide informed consent (Appendix E). Given the sensitive nature of some of the questions, participants were made aware of their right to withdraw at any point. They were asked to confirm they were over the age of 18. Although the researchers acknowledged that oSEM is widely accessed by individuals under this age, 18 is the current legal age in the UK for pornography consumption. There was no maximum age and participants of all gender identities and sexual orientations were invited to take part.

Procedure²⁰

We utilised a cross-sectional, online survey design using a secure institutional survey platform to create and distribute the questionnaires. Participants completed a number of self-report measures embedded in the survey, the details of which are provided below.

Measures²¹

Demographics (Appendix F)

Relevant personal information was collected from each participant. This included their age, gender, sexual orientation, ethnicity, religious affiliation, level of education, employment status and marital status. As categories of gender identity and sexual orientation are diverse, these characteristics were elicited in a free-text format to allow for this diversity in how people self-identify.

Sexual behaviour and experience (Appendix G)

Questions were chosen and adapted from Hald (2006) and Turchik (2007). These included: how many partners the participants had been sexually intimate with, the types of sexual activities they engaged in, and the frequency of these sexual contacts. Participants were also asked at what age they first engaged in sexual activities. To account for the multiple definitions of 'sexual acts' that would vary according to gender identity and sexual orientation, participants were asked to

²⁰ See extended method sections 2.5 and 2.8 for further details of the study procedure

²¹ For further discussion and critique of the measures, please see extended background section 1.9

describe in their own words the types of sexual acts they most commonly engaged in.

oSEM-use (Appendix H)

We used the operationalised definition determined by Peter and Valkenburg (2006; 2010) in their research. Participants were asked how often in the last three months they had intentionally looked at; (1) Pictures with clearly exposed genitals, (2) Video (clips) with clearly exposed genitals, (3) Pictures in which people are having sex, (4) Video (clips) in which people are having sex. Participants responded on a seven-point Likert scale: 1 (never), 2, (less than once a week), 3 (1-3 times a month), 4 (once a week), 5 (several times a week), 6 (every day), 7 (several times a day). This provided an overall score ranging from 4 to 28 with higher scores indicating more frequent oSEM-use. This scale has demonstrated high internal consistency (Cronbach's $\alpha = .95$; Peter & Valkenburg, 2010) in previous research. Reliability analysis in the present study similarly demonstrated high internal consistency ($\alpha = .91$).

Additional questions regarding age at first oSEM-use, reasons for oSEM-use, the context in which it is viewed, and type of oSEM viewed (adapted from Hald, 2006) were included.

Perceived realism²²

Perceived realism was measured using items defined by Peter and Valkenburg (2010). The seven-item measure assessed the perceived social realism and perceived utility of oSEM to produce an overall measure of perceived realism. Participants rated their agreement with statements such as; "Sex on the internet is similar to sex in real-life" and "By watching sex on the internet, you learn how to behave when having sex" using a five-point Likert scale (1=fully disagree, 5 =fully agree). Higher scores indicate a higher perception that sex on the internet is a realistic portrayal of sex in real-life. Peter and Valkenburg (2010) reported high internal consistency for overall perceived realism ($\alpha = .88$). In the present study, reliability analysis revealed $\alpha = .85$.

²² Published questionnaires have not been included due to copyright.

Psychological well-being

The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS; Tennant, Hiller, Fishwick, Platt, Joseph, et al., 2007) is a fourteen-item scale, developed to assess well-being. It assesses emotional features, for example “I’ve been feeling cheerful”; cognitive components, for example “I’ve been thinking clearly”; and psychological functioning, for example “I’ve been dealing with problems well”. The scale also identifies positive relational functioning as a key component to well-being, with items such as “I’ve been feeling close to other people.” Participants are asked to respond using a five-point Likert scale (1 = none of the time to 5 = all of the time). Higher scores suggest higher mental well-being. Validation of the measure has shown good internal consistency ($\alpha = .91$). Reliability analysis for the present study demonstrated high internal consistency ($\alpha = .90$).

Sexual satisfaction

The New Sexual Satisfaction Scale-Short Form (NSSS-S) developed by Štulhofer, Buško and Brouillard (2010), assesses global sexual satisfaction and behaviours that contribute to sexual satisfaction. The scale consists of twelve items and respondents are asked to state how satisfied they are from 1 = not at all satisfied, to 5 = extremely satisfied. Items include, “The quality of my orgasms” and “The balance between what I give and receive in sex.” Higher scores indicate higher sexual satisfaction. Good internal consistency for the scale has been demonstrated ($\alpha = .90$ to $.93$). When compared with other commonly used measures of sexual satisfaction (The Global Measure of Sexual Satisfaction; GMSEX, and the Index of Sexual satisfaction; ISS), the NSSS-S was found to be a psychometrically reliable option (Mark, Herbenick, Fortenberry, Sanders & Reece, 2014). The present study revealed similar internal consistency of $\alpha = .90$.

Body Areas Satisfaction Scale (BASS)

The BASS is a nine-item subscale of the Multidimensional Body-Self Relations Questionnaire (MBSRP; Cash, 2000), assessing the individual’s dissatisfaction or satisfaction with eight distinct body parts (e.g. face, upper torso, genitals) and overall appearance. Individuals are asked to rate their satisfaction from 1 = very

dissatisfied to 5 = very satisfied. High composite scores indicate the respondent is generally satisfied with the overall appearance of most of their body areas (Cash, 2000). Internal consistencies of $\alpha = .82$ for men and $\alpha = .83$ for women have been reported for this measure. In the current sample, high internal consistency was demonstrated $\alpha = .86$.

Ambivalent Sexism Inventory (ASI) and Ambivalent Sexism toward Men Inventory (AMI) – short forms

The ASI (Glick & Fiske, 1996) and the AMI (Glick & Fiske, 1999) are commonly used measures of sexist attitudes toward both men and women. The short forms contain 12-items as opposed to the original 22-item ASI and 20-item AMI. Both are comprised of two subscales; benevolence sexism/sexism towards men (BS/BM) and hostile sexism/sexism towards men (HS/HM). Research has reported positive correlations among the subscales suggesting an overall score can be obtained for each measure (Rollero, Glick & Tartaglia, 2014). Statements relate to men and women and their relationship in modern society (Hald, Malamuth & Lange, 2013), examples of which include, “Women should be cherished and protected by men” (ASI Short Form) and “Men act like babies when they are sick” (AMI Short Form). Participants indicate their agreement with each statement on a 1 (strongly disagree) to 5 (strongly agree) scale. Higher scores indicate more sexist attitudes. Both forms report high internal consistency, (ASI, $\alpha = .88$; AMI $\alpha = .83-.87$). The current study also demonstrated high internal consistency for both measures (ASI $\alpha = .87$; AMI, $\alpha = .84$).

Family Communication Sex Quotient (FCSQ)

The 18-item measure developed by Warren and Neer (1986) assesses general family orientation to discussions about sexual topics between parents and children. Orientation is measured across three dimensions: comfort (the degree to which sex is openly discussed in the family), information (perception of the informative nature of the discussions) and value (the importance of the family in learning about sex). Participants respond on a five-point Likert scale from “Strongly Disagree” to “Strongly Agree” to items such as, “I feel free to ask my parents questions about sex” and “Much of what I know about sex comes from family discussions”. Due to the retrospective nature of the study, and participants

being over the age of 18, the tense of the questions was altered to reflect their experiences growing up, that is, “I feel” to “I felt”. The scores are summed to represent the FCSQ score with higher scores representing more frequent, valuable and comfortable family communication about sexual topics. Across the research, the measure has demonstrated high reliability with $\alpha = .90$ on average (Warren, 2011). The present study similarly revealed high internal consistency ($\alpha = .93$).

Data analysis²³

We were interested in the interaction of these variables, specifically testing putative, mediating and moderating relationships stated in the study’s research questions. The first stage was to examine the direct effects; whether variable X (oSEM-use, as the theoretical ‘independent variable’ of interest) is associated with the Y variables (psychosocial outcomes) using correlational analysis. In addition to examining whether oSEM is associated with the different variables, we were also interested in the potential role of perceived realism in mediating any relationship between oSEM-use and these psychosocial outcomes. A variable can be classified as a mediator to the extent it accounts for the relationship between the independent and dependent variables (Baron & Kenny, 1986,). Finally, the analysis aimed to determine whether any mediating effects of perceived realism were moderated by family communication about sex. A moderator is defined as a variable that affects the strength or direction of the relationship between two variables (Baron & Kenny, 1986). In this case, we examined whether an indirect effect will vary in strength or direction conditional on the value of the moderating variable. Preacher and Hayes (2008) proposed a sophisticated and flexible framework for moderated mediation to analyse multiple interactions and test for indirect effects. The moderated mediation model depicted in Figure 1 allows for strong estimations of all direct and indirect effects and is shown to provide high power and adequate Type I error rates.

²³ See extended methods 2.9 for additional details of the statistical analyses

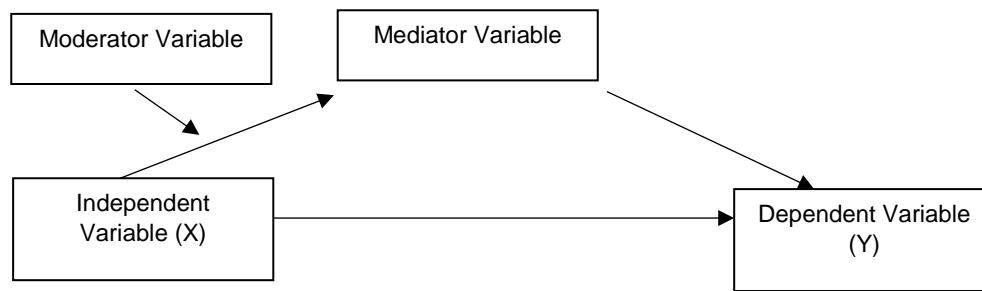


Figure 1. Illustration of a moderated mediation model

Analysis of the data was conducted using the statistical programme IBM SPSS v22, implementing PROCESS macros for moderated-mediation analyses written by Preacher and Hayes (2008).

Group difference analysis

Additional analysis was conducted to determine the extent to which age may be an important determining factor in the influence oSEM may have over the variables under examination. The sample was divided into two groups. The first group consisted of participants aged 18 to 24. This group was labelled the “Generation Sex” group as the historical and socio-technological context of this cohort suggests that individuals of this age would have been the first generation to have proceeded through adolescence with unprecedented access to internet pornography (Livingstone & Smith, 2014). The second group consisted of all the participants aged 25 and above and was labelled “Non-Generation Sex”. Independent *t*-tests were computed to uncover any group differences for each of the variables.

Results²⁴

290 individuals consented to take part. Of these, 272 completed the measures in full. The sociodemographic characteristics of the participants appeared to resemble similar samples (e.g. NATSAL; Mercer, Tanton, Prah, Erens, Sonnenberg, et al., 2013). Demographic data are presented in Table 1.

²⁴ See extended results, section 3, for supplementary analyses and further discussion of results

Table 1***General demographic information***

Characteristic	<i>n</i>	(%)	Mean	±SD	Range	Median
Age (valid <i>n</i> = 290)			30.1	9.1	18-70	28.0
18-25	91	31.4				
26-33	127	44.0				
34-41	45	15.5				
42-49	11	3.8				
50 and above	16	6.6				
Gender (valid <i>n</i> = 290)						
Male	81	27.9				
Female	199	68.6				
Other*	8	2.8				
Prefer not to say	2	0.7				
Sexual Orientation (valid <i>n</i> = 290)						
Heterosexual	252	86.9				
Gay	3	1.0				
Lesbian	4	1.4				
Bisexual	20	6.9				
Asexual	1	0.3				
Pansexual	5	1.7				
Other**	4	1.4				
Prefer not to say	1	0.3				
Religious affiliation (valid <i>n</i> = 290)						
Christian (Catholic)	19	6.6				
Christian (Protestant)	33	11.4				
Christian (other)	26	9.0				
Jewish	4	1.4				

Muslim	4	1.4
Buddhist	1	0.3
No Religion	191	65.9
Other***	7	2.4
Prefer not to say	5	1.7

Ethnic group (valid $n = 290$)

White	258	89.0
Mixed/multiple ethnic groups	19	6.6
Asian/Asian British		
Black/African/Caribbean/Black British	6	2.1
	3	1.0
Prefer not to say	4	1.4

Qualifications (valid $n = 290$)

None	4	1.4
GCSE's	22	7.6
A Levels/Highers	49	16.9
Diploma	25	8.6
Undergraduate	105	36.2
Postgraduate	73	25.2
Other****	9	3.1
Prefer not to say	3	1.0

Employment Status (valid $n = 290$)

In paid employment	200	69.9
In unpaid employment (e.g. voluntary)	9	3.1
Looking after family or home	7	2.4
Retired	4	1.4
In full time education	60	20.7

Unemployed	8	2.8
Prefer not to say	2	0.7
Marital Status (valid $n = 290$)		
Single	57	19.7
Dating	21	7.2
In an exclusive relationship	70	24.1
Cohabiting	59	20.3
Married	70	24.1
Divorced	3	1.0
Widowed	3	1.0
Other****	6	2.1
Prefer not to say	1	0.3

Note. Due to rounding, percentages do not total 100%

*Other gender include; gender non-binary, agender, transgender, demi-male

** Other sexual orientation includes; queer, demi-pansexual

***Other religious affiliation includes; Humanism, Agnostic, Discordian, Spiritual

****Other qualifications include; International Baccalaureate, HNC, Foundation degree, Trade school, Professional qualification, City and guilds

*****Other marital status includes; engaged ($n=4$), separated

Table 2 and Table 3 provide more specific demographic information relating to the sample's sexual history, experience and historical and current use of oSEM.

Table 2

Sexual demographics of sample

Sexual Behaviour	n	(%)	Mean	\pmSD	Range	Median
Age when first masturbated (valid $n = 290$)			14.3	4.3	2-55	14.0
Never	14	4.8				
2-9	11	3.8				
10-17	209	72.1				
18-25	35	12.1				

26-33	3	1.0				
34 and above	1	0.3				
Prefer not to say	17	5.9				
Frequency of masturbation (valid <i>n</i> = 274)						
Less than once a month	50	18.2				
Once a month	41	15.0				
Once a week	62	22.6				
A few times a week	66	24.1				
4 or more days a week	26	9.5				
Everyday	13	4.7				
More than once a day	11	4.0				
Prefer not to say	5	1.8				
Age of first sexual experience (valid <i>n</i> = 289)						
			16.2	2.8	6-31	16.0
10 and below	5	1.7				
11–15	115	39.8				
16–20	138	47.6				
21–25	16	5.5				
26 and over	2	0.7				
Never	7	2.4				
Prefer not to say	6	2.1				
Number of sexual partners (valid <i>n</i> = 277)						
			7-10*			
1–2	44	15.9				
3–6	69	24.9				
7–10	46	16.6				
11–20	61	22.0				
21–30	28	10.1				

31 or more	26	9.4
Prefer not to say	3	1.1

Sexual acts**

Vaginal sex	251	86.6
Oral sex	173	59.7
Anal intercourse	36	12.4
BDSM	17	5.9
Mutual masturbation	11	3.8
Manual masturbation	5	1.7
Roleplay	2	0.7
Kissing	2	0.7
Clitoral stimulation	1	0.3
Other***	1	0.3

Frequency of sexual acts (valid *n* = 277)

Less than once a year	11	4.0
A couple of times a year	28	10.1
2 times per month or less	79	28.5
1 to 3 time per week	125	45.1
4 times or more per week	29	10.5
Prefer not to say	5	1.8

*participants were not asked to specify exact number of sexual partners but to choose a category; (1) 1-2, (2) 3-6, (3) 7-10, (4) 11-20, (5) 21-30 or (6) 30 or more. Mean = 3.0 suggesting mean sexual partners of 7 to 10 people.

**Participants were able to endorse multiple response so the frequency may not total 100%

***Other sexual acts include: furring (the act of dressing up as an animal and meeting in the woodlands for sexual intercourse)

Table 3***Reported oSEM-use***

oSEM-use and preference	<i>n</i>	(%)	Mean	±SD	Range	Median
oSEM-use in last 3 months (valid <i>n</i> = 284)						
None	82	28.9				
Less than once a month	59	20.8				
1 to 3 times per month	71	25.0				
Once a week	29	10.2				
Several times a week	34	12.0				
Everyday	6	2.1				
Several times a day	3	1.1				
Age at first use (valid <i>n</i> = 287)			18.6	6.5	10-50	17.0
17 or below	127	44.3				
18-25	82	28.6				
26-33	18	6.3				
34-41	8	2.8				
42-49	8	2.8				
50 or above	1	0.3				
Never used oSEM	43	15.0				
Reasons for oSEM-use*(valid <i>n</i> = 280)						
Masturbation (solitary)	187	66.8				
Curiosity	81	28.9				
Sexual arousal with others	77	27.5				
(foreplay)						
Boredom	71	25.4				
To develop sexual Skills/confidence	30	10.7				

Other**	30	10.7
Source of info/education	25	8.9

Top 5 preferences in
pornographic themes (valid $n =$
280)

Lesbian	81	28.92
Amateur	79	28.2
Threesome	73	26.1
Female friendly	71	25.4
Anal	60	21.4

Perceived realism of oSEM (valid $n =$
277)

Unrealistic	66	23.8
Somewhat unrealistic	156	56.3
Somewhat realistic	50	18.1
Realistic	5	1.8

*Participants were able to endorse multiple response so the frequency may not total 100%

**Other reasons include; relaxation, to feel better and their partner enjoys it

oSEM-use

Overall, 62% of females, 95% of males and 50% of 'other gender identity' (relating to 85% of the total sample) reported to have used a variety of types of oSEM in the last three months. 28% of sample reported to have viewed oSEM prior to their first sexual experience, 64% had a sexual experience before viewing oSEM for the first time and 8% experienced both at a similar time. The majority (80%) of respondents demonstrated an overall perception that sexual portrayals depicted in oSEM were relatively unrealistic.

Correlational analysis

To address question 1, Pearson's correlational analyses were conducted to test associations between oSEM-use, perceived realism, and the psychosocial variables under investigation. The FCSQ scores were also included to determine

their relationship with any of the variables (see Table 4). Bootstrapping²⁵ was applied to account for lack of normality in the sample. Holm-Bonferroni sequential correction²⁶ was applied to account for multiple comparisons.

Table 4

Correlations between oSEM-use, perceived realism, psychosocial outcomes and family communication about sex

	1.	2.	3.	4.	5.	6.	7.	8.
1. oSEM-use		.18*	.13	-.00	.07	.02	-.07	.04
2. Perceived realism			-.02	-.01	-.02	.22*	.18*	-.02
3. Body satisfaction				.28*	.46*	.05	-.01	.02
4. Sexual satisfaction					.32*	-.10	-.12	.01
5. Wellbeing						-.12	-.08	.04
6. Total Ambivalent Sexism							.70*	-.05
7. Total ambivalence toward men								-.09
8. FCSQ								

* Correlation is significant at $p = .004$ (2-tailed)²⁷

No significant negative or positive correlations were found between (1) oSEM-use and (2) body satisfaction ($r = .13$, $p = .159$), sexual satisfaction ($r = -.00$, $p = .999$), mental well-being ($r = .07$, $p = .999$), total ambivalent sexism ($r = .02$, $p = .999$), total ambivalence towards men ($r = -.07$, $p = .999$) and family communication about sex ($r = .04$, $p = .999$).

oSEM exposure was found to be positively associated with perceived realism ($r = .18$, $p = .006$). Perceived realism was also positively correlated with total ambivalent sexism ($r = .22$, $p < .001$), and total ambivalent sexism towards men ($r = .18$, $p = .006$).

²⁵ See extended methods section 2.9.5 for explanation of bootstrapping

²⁶ See extended methods 2.9.1 for explanation of Holm-Bonferroni sequential correction

²⁷ Bonferroni adjustment applied to p value = 0.004

Well-being was found to be positively related to body satisfaction ($r = .46$ $p < .001$) and sexual satisfaction ($r = .32$ $p < .001$). Sexual satisfaction was found to be positively associated with body satisfaction ($r = .28$ $p < .001$).

In accordance with previous literature, ambivalent sexism and ambivalent sexism towards men were positively and significantly associated $r = .70$, $p < .001$).

Conditional Process Analysis

Here analyses addressed research question 2. The sampling distribution of the indirect effect is rarely symmetrical. Therefore bootstrap confidence intervals were chosen as the preferred inferential method (Preacher, Rucker & Hayes, 2007).

Mediation analysis

Mediation analysis was conducted to determine whether perceived realism mediated the relationship between oSEM and the variables found to be significant in the correlational analyses. No significant relationships were demonstrated between oSEM-use and any of the psychosocial outcomes. However, oSEM-use and perceived realism were found to be positively associated, as were perceived realism and ambivalent sexism and ambivalent sexism toward men. This suggests a possible indirect (mediated) path from oSEM-use to indices of ambivalent sexism, via the perceived realism of oSEM.

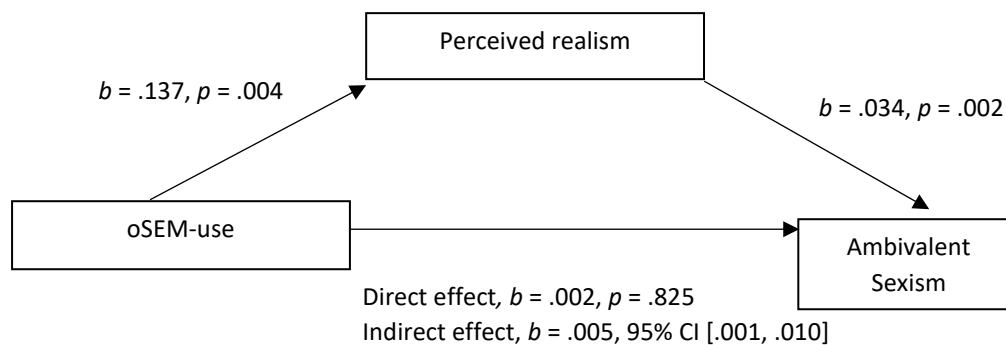


Figure 2. Model of oSEM-use as a predictor of ambivalent sexism, mediated by perceived realism

Figure 2 illustrates that overall there was a significant indirect relationship between oSEM-use and ambivalent sexism through perceived realism, $b = .005$, BCa 95% CI [.001, .010], $p = .023$. This represents a relatively small effect size, $b = .039$, BCa 95%, CI [.012, .086] and suggests a small mediation effect (Field, 2014).

Similarly, Figure 2 illustrates a significant indirect relationship between oSEM-use and ambivalent sexism towards men, through perceived realism, $b = .004$, BCa 95% CI [.001, .009], $p = .036$. This represents a small effect size, $b = .033$, BCa 95% CI [.008, .078] and suggests a small mediation effect.

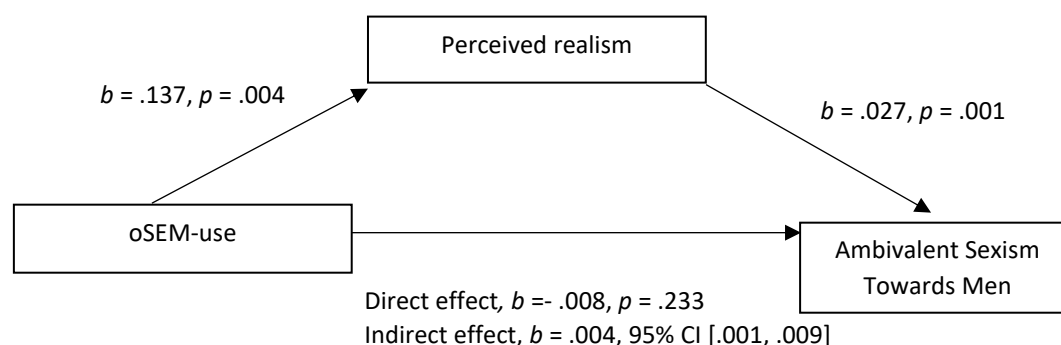


Figure 3. Model of oSEM-use as a predictor of ambivalent sexism toward men, mediated by perceived realism

Moderated mediation analysis

Question 3 addressed whether the conditional indirect effect of family communication about sex moderated this mediation relationship. Further analysis was conducted to determine whether an interaction between oSEM and the mediator (perceived realism) existed. The interaction with perceived realism was not found to be significant, $b = -.005$, 95% CI $[-.012, .001]$, $p = .120$. This does not provide evidence for the proposed moderated mediation model.

Age differences

To address question 4, t -Tests were computed to investigate the potential group differences between participants assigned to the “Generation Sex” and “Non-Generation Sex” groups. The results of which are summarised in Table 6.

Table 5

t-test Results Comparing Generation Sex and Non-Generation Sex

	Gen Sex (18-24yrs)			Non-Gen Sex (25yrs and above)			t Test	BCa 95% Confidence Intervals	
	Valid n	M	\pm SD	Valid n	M	\pm SD		Lower Bound	Upper Bound
oSEM-use	78	10.26	5.14	206	9.63	5.80	0.84	-0.77	2.13
Perceived realism	75	16.63	4.35	202	16.60	4.54	0.05	-1.20	1.29

Body Satisfaction	75	24.97	6.15	200	24.49	5.69	0.61	-1.14	2.23
Sexual satisfaction	75	46.03	10.37	203	44.41	10.20	1.17	-1.12	4.34
Well-being	75	42.31	8.79	202	44.27	8.07	-1.76	-4.090	0.25
Total ASI	74	2.43	0.69	201	2.55	0.65	-1.35	-0.29	0.05
Total AMI	74	2.33	0.58	201	2.40	0.62	-0.76	-0.23	0.10
FCSQ	74	48.66	12.53	200	46.91	13.79	0.96	-1.90	5.40

The results demonstrated no significant differences between age groups. This suggests that the younger respondents who reached sexual maturity in the context of mass oSEM availability were not distinguishable from other (older) respondents in terms of oSEM-use, perceived realism and the other variables of interest.

Discussion²⁸

We examined the relationship between use of oSEM and body satisfaction, sexual satisfaction, psychological well-being and sexist attitudes. We investigated perceived realism as a potential underlying mechanism by which oSEM-use affects these outcomes. The extent to which family communication about sex moderated the influence of perceived realism was also evaluated.

85% of the overall sample (95% male, 62% female and 50% other gender identity) reported using a variety of types of oSEM over the preceding three-months. These figures appear broadly consistent, albeit on the higher end, with the frequency of use reported in previous literature (Hald et al., 2012). This may be a reflection of the self-selecting recruitment design as individuals who volunteer for this type of research may differ from those who do not on a number of dimensions. For example, Strassberg and Lowe (1995), revealed that

²⁸ See extended discussion, section 4 for more detailed discussion.

volunteers compared to non-volunteers reported a more positive attitude toward sexuality, less sexual guilt and were more sexually experienced.

No unmediated (direct) relationships were demonstrated between oSEM-use and the psychosocial outcome variables of interest. Based on our findings, and assuming these might be broadly representative, there would seem to be little association between oSEM-use and important evaluations of self (in terms of sexual and body satisfaction, and wellbeing) or others (in terms of sexist attitudes), despite posited links.

Failure to detect relationships might be considered unusual given other research in the area, which tends to find or claim a variety of associations and effects (principally in a negative/adverse direction). At face value, present results portray a neutral picture regarding the influence of oSEM on a variety of outcomes. Yet a direct comparison with extant literature is problematic due to variations in methodologies, culture, and sample characteristics.

Possible explanations for these differences might be found in the neutral design of our research. Sex research can be particularly susceptible to the moral judgements and biases of the researchers and bound by social values (Pope, Voges, Kuhn, & Bloxsome, 2007). The current research purposely considered the wording of the questions asked and measures used, in an attempt to minimise the potential for bias. Participants were asked to use their own definitions for the sexual behaviours they engage in to prevent the need for reducing multifaceted sexual behaviours into simplistic and inadequate definitions (Duffy, Dawson & das Nair, 2016). The measures were chosen based on their validity and neutrality as a previous systematic review (Charig, Dawson & Moghaddam, unpublished) noted the use of measures that, through impartial wording, may elicit negative responses²⁹ (e.g. the Pornography Distress Scale; Bridges, Bergner, & McHinnis, 2003; Problematic use of Pornography Scale; Kor, Zilcha-Mano, Fogel, Mikulincer, Reid et al., 2014).

Our study applied an opportunistic sampling strategy, using social media platforms, which resulted in a snowballing effect. The obtained sample had a

²⁹ See extended background section 1.9 for further discussion

mean age of 30 years and most of those sampled (approximately 70%) identified as women. Research has widely explored the differences between men and women in their use of oSEM and its potential impact (Morgan, 2011; Hald et al., 2012). Unreported preliminary analysis of the data-set found no gender differences for any of the variables. The only difference was age of first use, with men reporting accessing oSEM at a younger age than other genders.

The mean age participants reported to have first accessed oSEM in this study was 18.6 years, an age somewhat older than recounted in recent studies (average age of 14-17 years; Brown & L'Engle, 2009). The sample's later average age of first oSEM access might partially explain the study's lack of significant findings. Media effects research proposes that media effects are most influential in childhood and early adulthood (Valkenburg & Peter, 2013). In relation to pornography, research suggests early exposure has a stronger influence over the affective, cognitive and behavioural aspects of sexuality, especially if they are not yet well rooted (Štulhofer et al., 2010). This was not supported by the secondary group analysis, whose results failed to demonstrate significant group differences between the 'Generation Sex' and 'Non-Generation Sex' age groups on each of the variables investigated. This is interesting given dominant narratives around the vast quantity of pornography available to the 'Generation Sex' cohort while growing up and its detrimental impact (Horvath et al., 2013). Our results appear to challenge this dominant narrative but it is unclear why. It may be that the participants were misreporting or misremembering their experiences. Perhaps their experiences were not as salient as research might lead us to believe.

Media effects research presents a general understanding that any effects are conditional or emerge from the interaction with the individual and contextual characteristics (Valkenburg & Peter, 2013). oSEM, appears to be classed distinctly and consistently reduced to behavioural processes without wider acknowledgment of the theoretical approaches to media effects (Atwood, 2011). Research in this field continues to seek to correlate a stimulus with an effect. This provides little information and is often influenced by dominant political and cultural messages that certain sexual behaviours are morally wrong (McKee, 2009).

A key focus of this research was to examine whether perceived realism might account for the individual's susceptibility to the influence of oSEM and which factors might moderate this. oSEM consumption was found to be related to the perceived realism of oSEM's portrayals of sexual activity. Specifically, the higher the frequency of oSEM-use, the more realistic the individual perceived oSEM to be. This finding is congruent with previous research which has established a positive association between oSEM-use and perceived realism (Peter & Valkenburg, 2010). This appears to support the Cultivation Hypothesis (Gerbner et al., 1976) which postulates a positive relationship between media consumption and the extent to which its content is perceived to reflect real-life. However, most of the sample perceived pornography to be more unrealistic than realistic. If they were to acknowledge pornography's tendency toward fantasy, this might account for the lack of detrimental impact through the lack of comparison between their real-life sexual experiences and what they view online.

The meaning of the association between perceived realism and sexist attitudes, as measured by the ASI and AMI, is a result with unclear origin. The finding suggests that those who perceive oSEM as more realistic are also more likely to hold more sexist attitudes towards both men and women, although we are not able to comment on the directionality of this relationship. A possible explanation according to the media practice model, may be that individuals, based on their existing attitudes, seek out congruent content in sexual media (Baams et al., 2015). That is, individuals who previously held more sexist attitudes, might be more inclined to seek out this type of theme within the oSEM they view, forming a type of circular feedback. This is as opposed to the prevailing assumption that oSEM will make its viewers more sexist in their attitudes. Exposure to this may subsequently influence the perceived reality of oSEM content (cultivation hypothesis; Gerbner et al., 1977).

An alternative explanation, corresponding with social cognitive theory, may be that individuals, through their observation of sexual media that endorse gender non-egalitarian attitudes that are perceived as realistic, acquire their own models for these behaviours, roles, and attitudes (Baams et al., 2015). It is important to consider that oSEM is by no means the only medium by which sexist attitudes and behaviours are conveyed. Our study is unable to account for, or control the

various other avenues through which sexist attitudes and behaviours may be activated. It is also not able to account for specific individual differences that might contribute to their development.

The results did, however, uncover a small, but significant indirect effect of oSEM-use on sexist attitudes, through perceived realism. This finding is consistent with Peter and Valkenburg's (2010) study. It provides speculative support for the DSMM's proposition that how someone responds to media (their response state) can mediate the relationship between the media use (oSEM) and media effect (sexist attitudes). The results do not support any behavioural consequences of this indirect association between oSEM-use and sexist attitudes (via perceived realism) as attitudes are not a reliable predictor of behaviour (Ajzen & Fishbein, 2005).

The study attempted to investigate one of the factors that might account for this relationship between oSEM-use and perceived realism, by analysing the potential moderating influence of family communication about sex. The original hypothesis stated that more open communication about sexual topics might moderate the relationship between oSEM and perceived realism. By providing an alternative method of sexual socialisation, the individual may endorse sexual behaviours and attitudes based on sexual scripts or social models formed through this alternative source (such as their parents). As a result, when encountering oSEM for the first time, this might alter their perception of its realistic portrayals of sexual activity. The results did not demonstrate this relationship. This suggests family communication about sex is not a moderator of perceived realism in the current sample. As such, the DSMM's proposition that media effects are conditional upon differential susceptibility variables (in the case of this study, family communication about sex), and that these susceptibility variables also have the potential to moderate the effects of the mediator, was not verified.

Research suggests a plethora of potential mediating and moderating variables such as; personality traits (Hald et al., 2014); and the role of sexual experience (Peter & Valkenburg, 2009). According to the DSMM, these could be classified as differential susceptibility variables. Sexual experience, in particular, may have been an important variable to include in the analysis given the average age of the

sample (30 years) and the finding that the average age of sexual activity (16.2 years) was younger than average age of first use of oSEM (18.6 years). One might expect that through 'real-life' sexual encounters, the individual would be more likely to be able to differentiate between real and unrealistic portrayals of sex depicted in oSEM³⁰.

Overall our study provides an interesting challenge to prevalent sexual discourses around the impact of oSEM on a range of outcomes important for psychological and mental-wellbeing. Through a neutral study design and open agenda, we found no direct associations between oSEM-use and variables gauging body satisfaction, sexist attitudes, sexual satisfaction, and psychological well-being. A small indirect effect of oSEM-use on sexist attitudes, mediated by perceived realism, was demonstrated. This emphasises the importance of investigating possible underlying mechanisms and not merely stating causal relationships. This challenge of deciphering why some individuals might be more susceptible to the influences of oSEM than others is ongoing.

*Strengths and Limitations*³¹

The use of an online survey provided the scope for widespread recruitment and a large enough sample size so that the analysis was sufficiently powered³². The anonymity of this recruitment method was particularly advantageous for recruiting individuals who may have felt uncomfortable or not wished to disclose their sexual behaviours in an interview setting. Nonetheless, this design also had several disadvantages including; the reliance on self-report; the exclusion of those who did not have access to the internet; and no control over spread of recruitment or the environment in which the participants completed the survey. The use of forced-choice measures did not allow for nuanced, in depth responses.

The use of correlational analyses is commonly critiqued within research as they are often erroneously interpreted in terms of causal relationships (Kohut, et al., 2016). The current study has not implied such relationships and attempted to establish possible underlying mechanisms. According to the DSMM, boundless

³⁰ This hypothesis was subsequently, investigated see extended results section 3.3.1

³¹ See extended discussion section for a critical evaluation of the research 4.4

³² See extended method section 2.7 for the power calculation

dispositional, developmental, and social variables might account for differential susceptibility to media use, media response state, and media effects. This poses significant challenges for robust, conclusive research within the field.

The present study may also be limited by its decision not to include individuals under the age of 18, particularly as current cultural and political dominant discourses centre around the significant concern about the harmful consequences of youth viewing oSEM (Horvath et al., 2013). Media effects literature also acknowledges a stronger effect during childhood and early adolescence. The study was interested in current as well as historical oSEM-use, and its impact on current functioning and relationships. Although patterns of oSEM-use were not specifically tracked in the current sample (as this would rely on retrospective recall), questions regarding age of first use, age of first sexual experience and current use still allowed for a historically informed, nuanced perspective on the data.

Cross-sectional designs rely on the averaging of effects within groups. This may be a significant limitation within this study and sex research in general as individual's sexual experience and behaviour is widely heterogeneous. The decision to include members of any sexual orientation will have contributed to this variation. Although most the study measures were gender and sexuality non-specific, this was not the case with the AMI and ASI measures of sexism³³. The heteronormative assumptions inherent within these measures limit their relevance to non-heterosexual populations. However, there is a precedent, albeit limited, of these measures being used with non-heterosexual samples (Warriner, Nagoshi & Nagoshi, 2013). There is also evidence that benevolent and hostile sexism constructs can be endorsed by those in non-heterosexual relationships (Yi, 2015).

Clinical implications and future research³⁴

With the ubiquity of oSEM and extent to which the population are regularly accessing its content, our findings have some interesting and perhaps

³³ See extended results section 3.3.2 for further exploration of this limitation

³⁴ See extended discussion for further discussion of implications (section 4.3) and future research (section 4.7)

controversial implications. Inconsistent with previous research, the results did not demonstrate any negative associations between oSEM-use and psychosocial functioning and well-being. These results are by no means conclusive and the researchers do not claim them to be a representative or irrefutable. They do provide some evidence that the influence of normative oSEM-use may not be as pervasive or significant as the literature would have us believe. For this sample, there was little evidence of any negative effects, which could suggest that oSEM had little bearing over the sexual functioning and well-being of the individuals who took part. Acceptance or acknowledgement of these conclusions might help to challenge the pervasive cultural message that oSEM-use is shameful and iniquitous. Reducing the shame associated with its use might encourage individuals to seek help if they perceive their use as becoming problematic (as with addiction).

Sexual discourses are increasingly expressed in terms of a 'therapeutic culture' with a focus on promoting sexuality as a source of personal fulfilment (Plummer, 1995 as cited in Atwood, 2006). Within adult populations, normative use of oSEM is beginning to reveal beneficial effects³⁵. Within clinical settings, researchers have started to investigate therapeutic uses of pornography for couples and individuals with sexual dysfunction (Robinson, Manthei, Scheltema, Rick & Koznar, 1999). Continuing to understand the positive uses and influences of oSEM through research may continue to challenge the cultural discourses focused on harm, and potentially contribute to healthier and more fulfilling sex lives. If evidence suggests that these stimuli are not inherently/unconditionally harmful, there may be more scope to explore potential beneficial applications or adjunctive uses within clinical settings.

Future research would benefit from the use of longitudinal methodologies to further understand the antecedents and consequences of oSEM-use across broad populations. Media effects theories state the importance of deciphering vulnerability characteristics to attempt to establish why some are more susceptible to its effects than others. This is an area which will continue to require research to comprehend how to modulate its effects.

³⁵ See extended background section 1.5 for discussion of positive pornography studies.

The indirect effect of oSEM on sexist attitudes through perceived realism suggests the importance of educating young people about oSEM. Further investigation to determine what factors might influence the extent to which individuals perceive oSEM as realistic portrayals of sexual activity would be beneficial. For example, exploring the effects of media literacy training (where parents and caregivers are taught how to support their children to critically appraise the media they are viewing; Lomonaco, Kim & Ottaviano, 2010), on perceived realism judgements.

Future research might also wish to explore the quality of sex education as this may provide an influential environment in supporting critical appraisal of media representations of oSEM, and enabling separation of fantasy from reality (Dean & Garling, 2010). The development of sexual education programmes which address the role of pornography and its potential effects, may help to facilitate open communication and reduce the concealment and potential shame associated with its use. Providing young people with comprehensive sexual education with the inclusion of topics such as masturbation and mutual pleasure, may leave them less inclined to turn to oSEM as a principal source of information. This may help individuals to contextualise the content of the oSEM that they view.

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Extended Paper

1 Extended Background

1.1 Overview

The following section will outline and critique contemporary literature informing this study's research aims; expand on the theory and ideological perspectives related to pornography³⁶ use and its effects; and provide a more in depth rationale of the variables and measures utilised.

1.2 Pornography effects research

With the notable expansion of pornography across the internet and the subsequent ease with which it can be accessed, there has been a resurgence in public and scholarly concern regarding its putative links to a range of outcomes. These include the premature sexualisation of adolescents, sexual violence and sexual permissiveness (Attwood & Smith, 2014). As a result, an increasing body of research has been commissioned and dedicated to the exploration of harm and the negative influences of pornography.

In 2013 a rapid evidence assessment evaluating the effects of pornography³⁷ exposure on young people was completed in response to this increasing concern (Horvath Alys, Massey, Pina, Scally & Adler, 2013). A key aim of this assessment was to ascertain and clarify evidence linking pornography exposure to distorted perceptions and expectations of sexual practices, attitudes and behaviours. The report highlighted a number of "confident conclusions" (pp.7) based on an extensive review of the literature. The first of these was that the use of and exposure to pornography affects young people's sexual beliefs. Specifically,

³⁶ Terminology for pornography varies within the literature. There is no agreed upon definition (Daneback, Træen & Månsson, 2009) and is "dependent not only on cultural, social and historical contexts, but also on individual's own experiences and beliefs" (Ciclitira, 2002, p.191). Terminology most frequently used: pornography, internet pornography, sexually explicit material (SEM) and online sexually explicit material (oSEM). All appear to be variants on the following definition: materials depicting unconcealed and explicit exposure to genitalia and sexual acts, aimed at enhancing sexual feelings and thoughts (Hald & Malamuth, 2008).

³⁷ Emphasis was on pornographic content available online, termed (oSEM), given its accessibility and ubiquity.

unrealistic attitudes about sex; less progressive gender role attitudes, such as the endorsement of male dominance and female submission; female objectification; and greater acceptance of casual sex. Their second finding specified a link between pornography use and engagement in “risky” sexual behaviour. These included earlier engagement in sexual activities; unprotected oral or anal sex; and multiple sexual partners. What constitutes “risky” sexual behaviour is laden by moralistic judgements³⁸ and does not seem to reflect the shifting sexualised cultural environment (Flood, 2009).

Many limitations inherent to the conceptualisation and design of the research were identified. A large proportion of the studies utilised cross-sectional and correlational methodologies. As a result, it was not possible to infer causality. This did not appear to limit the conclusions established within the field. This may be due to their congruency with current cultural and political anti-pornography discourses. For example, in 2013, David Cameron, the Prime Minister at the time, implemented a scheme in which online pornography would be blocked by default, stating that pornography was “corroding childhood” (BBC, 2013).

A previous review by Owens, Behun, Manning and Reid (2012) argued this need to move beyond causality and start to examine possible mediating and moderating variables. Ignoring these variables can lead to biased estimations of effect sizes and influence data represented in meta-analyses (Holbert & Stephenson, 2003). They also argue the need for considering alternative methodologies, such as experimental designs, to try and decipher cause and effect. However, these types of designs pose ethical and practical concerns, especially when applied to the study of children and adolescents (Horvath et al., 2013). The experimental studies that exist have been criticised for being overly artificial and consequently unrepresentative of real-life pornography use (Thornburgh & Lin, 2002, as cited in Flood, 2009). Additional criticisms include the lack of theoretical or explanatory models underpinning the research. Furthermore, there was limited exploration of the relative influence of the proliferation of technology and whether this was merely exacerbating people’s uncertainty and concern (Horvath et al., 2013).

³⁸ See ideological perspectives, section 1.3

The review identified pertinent areas for future research. These include the exploration of potential individual differences; what might constitute a vulnerability to the perceived effects; and the mechanisms through which these effects (if any) are achieved. The current research aims to address some of these questions by investigating the possible underlying mechanisms through which pornography might exert its influence.

1.3 Ideological perspectives

When interpreting the research, consideration of the underlying ideological perspective is imperative. The explicit statement of the ideological perspective framing the design and implementation of a study is often lacking in the literature. Within pornography research, three prominent ideological perspectives exist: (1) the radical feminist, (2) the conservative-moralistic and (3) the liberal perspectives. These underpin and structure much of the debate surrounding the subject and direct much of the research (Hald, Seaman & Linz, 2012). Individuals who endorse a particular perspective will make assumptions about human nature. This in turn will influence the formation of definitions and hypotheses about the impact of pornography on the individual and on wider society (Malamuth, 1999).

1.3.1 Radical feminism

“At the core of contemporary pornography is contempt for women. One need not look at the most violent or sadomasochistic pornography to reach that conclusion” (Dines, Jenson & Russon, 1997, pp.99). This quote succinctly encapsulates the key tenet of the radical feminist perspective of pornography. Those who adopt this perspective argue that sex is the primary method through which men exert their power over women (Malamuth, 1999). Pornography propagates this assumption through distorted portrayals of sexuality in which women are depicted as “anonymous playthings, adult toys, dehumanised objects to be abused, broken and discarded” (Brownmiller, 1975, pp. 394). Furthermore, radical feminists propose that pornography promotes the construction and perpetuation

of men's continual discrimination against and subordination of women (Hald, Seaman & Linz, 2012).

Research supported by radical feminism has focused on the connection between pornography use and harmful outcomes. These include the endorsement of gender inequality; increased acceptance of sexual aggression and discrimination against women; and acceptance of rape myths (Malamuth, 1999). In support of this perspective, an early study demonstrated an association between the consumption of violent and degrading pornography and the possession of non-egalitarian attitudes towards women (Garcia, 1986). Another study (Malamuth & Check, 1981) demonstrated significant correlations between pornography use and sexually aggressive behaviour. However, further analyses revealed overlap with other risk factors, (for example, attitudes towards the subjugation of women) suggesting the role of these variables in mediating or moderating the relationship between pornography use and aggression (Malamuth, Hald & Koss, 2012).

The legitimacy of the conclusions drawn from this literature is limited by inconsistent results and methodological constraints (for example, correlational designs). Much of the research appears to be based on outdated content analyses or unverified assumptions that the content of sexually explicit material predominantly represents gender inequality (Klassen & Peter, 2015). A recent content analysis (Klassen & Peter, 2015) investigated the ways in which internet pornography depicts gender inequality. Their analysis revealed objectification of both women and men and that neither gender differed in terms of social or professional status. Women were portrayed as more submissive during sexual activities but not dehumanised (contrasting with feminist expectations). Portrayals of violence and non-consensual sex were rare. These results demonstrate the complexity of investigating gender equality and how it is portrayed in sexually explicit media. This emphasises the need for a nuanced approach to studying its effects.

Regardless of these critiques, contemporary feminists still advocate the view that pornography teaches men how to degrade women (Kohut, Baer & Watts, 2016). If these assertions have merit, our research would expect to reveal positive

associations between oSEM consumption and the variables under investigation, particularly the possession of sexist attitudes.

1.3.2 Conservative-moralist

This perspective, with its moral and theological foundations, proposes that humans have a certain degree of 'free will' but are influenced by the sociocultural environment (Hald et al., 2012). Pornography, with its ubiquity and ease of access, is held as part of this environment. Pornography is believed to have the potential to adversely influence standards of behaviour, morals and values of the individual and society as a whole (Hald et al., 2012). Advocates of this viewpoint argue that pornography consumption "undermines and destabilises the moral fabric of...society, by encouraging sexual promiscuity, deviant sexual practices and other attitudes and behaviours that threaten traditional family and religious institutions, and which conservatives regard as intrinsically morally wrong" (West, 2004). This objection to pornography is distinct from the radical feminist perspective whose primary concern is the impact of pornography on women (Malamuth, 1999).

Research supporting this position has investigated the hypothesis that exposure to pornography leads to morally undesirable behaviours such as, engagement in sexual acts outside of marriage, promiscuity, homosexuality and adultery (Malamuth, 1999). Zillmann and Bryant (1988) demonstrated that prolonged exposure to sexually explicit materials promoted greater acceptance of pre- and extramarital relations, devaluing the institution of marriage. A review of the research exploring the impact of internet pornography on marriage and the family (Manning, 2006), revealed a number of trends in support of this perspective. The review concluded that pornography use has the power to alter perceptions and beliefs about relationships; devalue the sanctity of marriage, monogamy and raising children; and jeopardise the economic, emotional and relational stability of marriages and families.

A critique of the research, as with much of the research in this area, lies in the directional relationships inferred from methodologically flawed studies. It is unclear to those attempting to study the influence of pornography whether its role

is one of an antecedent or a consequence of the behaviours and attitudes described above.

1.3.3 Liberal perspective

The underlying tenet of the liberal perspective is captured effectively by the following quote: “I disapprove of what you say, but I will defend to the death your right to say it” (Hall, 1986 as cited in West, 2004). In relation to pornography, liberals do not necessarily approve of it, but defend that freedom of expression of ideas is a basic human right, and pornography is considered such a form of expression (Malamuth, 1999). As such, individuals should have the freedom to use pornography as desired (Hald et al., 2012).

Malamuth (1999, pp.82) described the four main assertions of the liberal perspective.

1. “Most sexually explicit material will probably trigger sexual thoughts, but these do not necessitate action³⁹. Pornography should therefore be considered harmless unless these thoughts do result in harmful action.”
2. “Pornography could be considered a useful form of communication through allowing the self-expression of sexual desires and interests.”
3. “The state should not restrict an individual’s basic human right to free expression of ideas. As long as its use is restricted to personal pleasure, such as sexual arousal or use with consenting partners, society has no right to interfere.”
4. “Although pornography is not generally believed to be harmful, some may be more susceptible to potential adverse effects and may require imposed restrictions if they were to act illegally.”

In summary, the individual’s right to freedom of expression, relative harmlessness of pornography use and right to privacy, underlie this ideological perspective. Adversaries of this perspective argue the right to exercise restrictions on both freedoms of expression and privacy in order to prevent harm to others (West, 2004). Liberals agree that individuals should not be causing harm through their

³⁹ This idea has been termed ‘thought-action fusion’ – the belief that thinking about an action is equivocal to acting out – and is conceptualised as an unhelpful thinking style commonly seen in anxiety disorders such as Obsessive Compulsive Disorder (Rachman, 1993).

actions, yet what constitutes harm differs between the different perspectives. In particular, they disagree with the radical feminists and conservative-moralists regarding what exactly constitutes harm to others. When is it possible to say that something directly causes harm and how much harm is sufficient to justify restrictions and sanctions over the material thought to cause it (West, 2004)?

Liberal defenders of pornography argue that the lack of empirical research limits the assumptions that can be made about the impact of it (Hald et al., 2012). The question of whether pornography directly is linked to harmful behaviour raises complicated conceptual issues about the idea of causality (West, 2004). Liberals acknowledge pornography may contribute to certain attitudes and behaviours that may be detrimental, but it is likely interwoven with numerous other factors in complex and multi-faceted ways. Guided by this perspective, one longitudinal study covering 20 years and multiple countries investigated the connection between pornography use and criminal sexual behaviour such as sexual assault and rape. They tracked the growing prevalence and accessibility of pornography and compared this to crime data. Consistent with liberal theory, the results revealed no increase in the incidence of rape and sexual assault, suggesting no causal connection between sexual crime and pornography (Kutchinsky, 1991). Liberals also argue the possibility that pornography can have beneficial effects (Malamuth, 1999). One study revealed that watching sexually explicit films increased positive feelings and the desire to be close to one's partner (Staley & Prause, 2011) and others have revealed that when used in a mutual fashion, pornography can enhance a couple's sexual relationship and foster an open, erotic atmosphere (Daneback, et al., 2009; Resch & Alderson, 2013).

The current research has developed within this liberal perspective as we acknowledge the potential influence of pornography on a range of psychosocial outcomes (both positive or negative). We seek to gain some understanding of the complex ways in which it may exert its effects (not merely making assumptions of causality). The design of the research was carefully considered and endeavoured to be free from moral judgements and researcher bias.

1.4 Psychosocial outcomes

1.4.1 Pornography and sexist attitudes

(See radical feminism above). It has been argued that sexism and hostility towards women is commonly depicted in pornography, more so than any other media (Flood, 2009). This has contributed to intuitive predictions that pornography consumption will be related to sexist attitudes and endorsement of non-egalitarian gender roles, despite research producing mixed results (Kohut, Baer & Watts, 2015).

One possible explanation for the inconsistent research findings might relate to the current conceptualisation of sexism which, has seemingly progressed to a far more nuanced and subtle concept. This is opposed to explicit prejudice against members of the opposite sex. Our understanding has additionally extended beyond the uniformly negative cultural images of women and assumptions of the unidirectional nature of sexism (Bohner, Ahlborn & Steiner, 2010). Previous studies have used measures such as the “Attraction to Sexual Aggression Scale” (Malamuth, 1989), which focuses on extreme conditions such as rape and murder; and the “Attitudes Toward Women Scale” (Spence, Helmreich & Stapp, 1973), which might fail to capture subtler forms of sexism (Garos, Beggan, Kluck & Easton, 2004).

Modern day sexism suggests a movement from hostility to ambivalence as a result of shifting gender norms and attitudes (Glick & Fiske, 2011). Acknowledgement of the ambivalent nature of sexism has created a dialectic, whereby someone of a specific gender can be idolised and at the same time, treated with contempt (Plous, 2002). Ambivalent sexism (Glick & Fiske, 1996) refers to this notion that one can hold both benevolent and hostile attitudes towards the opposite sex. These are hypothesised to be the result of the structural relations between men and women that are culturally prolific, for example, patriarchy, gender differentiation and sexual reproduction (Glick & Fiske, 2001).

One relatively robust study completed by Hald, Malamuth and Lange (2013) found an association between pornography use and non-egalitarian attitudes and

hostile sexism amongst men but not women. Their study also highlighted the failure of previous research to investigate possible mechanisms that underlie this relationship. Their results demonstrated the moderating role of personality traits (such as agreeableness) and the role of sexual arousal as a mediator. So far, no other comparable studies have demonstrated these associations (Kohut et al., 2015). Those who refute this and endorse a relationship between pornography and sexism, do so based on underpowered studies with small, self-selecting samples and small effect sizes (Kohut et al, 2015).

Taking into account these limitations, Kohut and colleagues (2015) attempted to investigate this association using a large American sample. Using data from the General Social Survey, their study did not support a relationship between pornography use and non-egalitarian attitudes. In fact, using high-powered statistical analysis, they found a positive association between pornography use and more egalitarian attitudes. This appears to be a substantial refutation of the radical feminist's stance that pornography is a "crisp deliverer of women hating ideology" (Dines 2009). Their explanation for the discrepancy in their findings relates to differences in the characteristics of those who volunteer for research (as in the Hald et al., 2013 study) and those who are randomly sampled. Additionally, methodological limitations such as, a single item measure of pornography use, correlational design, and small effect sizes, prevent firm conclusions being drawn. As such, further empirical study is warranted.

1.4.2 Pornography and body image

From a social comparison perspective⁴⁰ (Festinger, 1954), media portrayals of idealised body types provide a powerful source of influence over an individual's body image (Kvalem, Træen, Lewin & Štulhofer, 2014). In mainstream media, research concurs that female bodies are becoming thinner and masculinity is increasingly associated with muscular physiques (Papadopoulos, 2010). Results from experimental studies have consistently demonstrated decreased body self-esteem and satisfaction in women after viewing pictures of thin models (Groesz, Levine & Murnen, 2002). For men, similar effects have been revealed after seeing media portrayals of idealised masculine images (Agliata & Tantleff-Dunn, 2004).

⁴⁰ See below for discussion of Social Comparison Theory

These findings elicit fear, especially within adolescent populations. Evaluations against these unrealistic images may cultivate beliefs of not being good enough, contributing to appearance anxiety and acute body dissatisfaction (Papadopoulos, 2010).

Despite the large body of literature around media influences on body image (Lopez-Guimera, Levine, Sanchez-Carracedo & Fauquet, 2010), relatively little empirical research has looked specifically at the influence of oSEM (Peter & Valkenburg, 2014). From the limited research, there is general consensus that pornography use is associated with decreased body satisfaction. As with mainstream media, content analyses of pornographic material have identified body types that are believed to be unrepresentative of the general population (McKee, Albury & Lumby, 2008). For example, McKee et al., (2008), revealed that; only 5% of actors were classified as overweight; 80% of female actors had large or average breasts; only 3% of the actors had small penises; 55% possessed penises larger than the average penis size.

Pornography, with its focus on, and unconcealed depictions of genitalia, is hypothesised to decrease satisfaction with one's own genitals (Peter & Valkenburg, 2014; Cranney, 2015). According to the social comparison framework (Festinger, 1954), when viewing oSEM, individuals may be likely to compare themselves in an upward fashion with the actors. In doing so, they may become more aware of a discrepancy between their own bodies parts and those of the actors, subsequently resulting in dissatisfaction. Peter and Valkenburg (2014) aimed to investigate this hypothesis. They revealed an association between oSEM-use and body dissatisfaction in males, especially their stomachs, but not their penises. No associations were found for women. The researchers found these null results somewhat surprising but identified limitations that might have contributed to this. For example, their neglect to capture body image importance in their measure. Cranney (2015) critiqued this study for its use of a single lag autoregression that was only six months, and suggested this limited the study's argument for a null relationship. Cranney (2015) conducted a cross-sectional study and did find a relationship between pornography use and penis dissatisfaction. However, this is unsurprising given the study's cross-sectional design. This type of methodology does not allow for alternative accounts to

investigated, such as whether those with low sexual and body confidence are drawn to using pornography more frequently rather than engage in real-life sexual encounters (Cranney, 2015).

Further investigation into this area is warranted given the prevalence of body dissatisfaction in Western cultures (Lopez-Guierma et al., 2010). However, research is posed with the significant challenge of differentiating the influence of porn as a distinct media, separate from widely available cultural messages about ideal body types that are present in general media.

1.4.3 Pornography and sexual satisfaction

Sexual satisfaction is integral to well-being with research consistently demonstrating a link between life, sexual and relationship satisfaction (Byers, 2005; Štulhofer, Buško & Brouillard, 2010). Social comparison theory⁴¹ (Festinger, 1954) provides a useful framework when attempting to decipher this relationship. Content analyses commonly reveal depictions of sexual prowess, stamina, variety and ease of arousal (Brosius, Hans-Bernd, Weaver & Staab, 1993) within pornographic content. It has been suggested that individuals might compare their own sexual experiences to those depicted in sexually explicit material in an upward fashion, potentially highlighting a discrepancy leading to judgements of inferiority and sexual dissatisfaction (Peter & Valkenburg, 2009).

A review of the literature concerning the relationship between pornography use and sexual satisfaction has yielded mixed results. Some studies have reported associations between the use of pornography and enhanced sexual satisfaction. Others have demonstrated a negative impact on sexual satisfaction. This lack of uniformity is possibly accounted for by the heterogeneity of methodologies, definitions and samples.

Some studies have stated that pornography is a threat to the stability, the quality, and sexual satisfaction within the relationship. When used in solitary and without the knowledge or involvement of their partner, pornography-use was also viewed as a betrayal and act of infidelity (Manning, 2006). However, these studies do not clearly differentiate whether it is the act of using pornography itself, or the

⁴¹ See section 1.6.1.2 for further explanation of social comparison theory

deception that contributes to reduced satisfaction. Other studies have also demonstrated an association between pornography use and lower sexual satisfaction (Muusses, Kerkhof & Finkenauer, 2015; Szymanski & Stewart, 2014; Yucel & Gassanov, 2010). These findings lend tentative support to a social comparison framework with suggestions that dissatisfaction was related to individuals feeling they were not meeting the other's sexual needs or that they did not live up to the fantasy depicted in the sexual content. However, these studies were generally of poor quality with small to moderate effect sizes ($r = .10$ to $.30$) and limited by their sampling population. For example, women who were already reportedly distressed by their partner's pornography use (Bergner & Bridges, 2002).

A common feature of the studies that reported a positive association between pornography and sexual satisfaction related to mutual use of pornography or the use of pornography as a sexual aid. Daneback, et al., (2009) and Maddox, Rhoades and Markman, (2009) described how when used with their partner, pornography use led to higher satisfaction. Mutual use was associated with an "open erotic climate" (Daneback et al., 2009) whereby partners felt able to communicate openly and explore their sexuality in a consensual fashion. It might be expected that those who are satisfied sexually in their relationships would also report greater overall quality (Byers, 2005). These positive results attempt to address the significant imbalance towards pornography being seen as a significant threat to relationship stability and perhaps reflect a growing acceptance of pornography use within the general population (Carroll, Padilla-Walker, Nelson, Olson, McNamara, Barry & Madsen, 2008).

Many of the studies reported correlational designs, and as such, determining direction of causality is not possible. It is plausible that pornography might have the ability to influence satisfaction. This assumption does not consider that dissatisfaction within one's own sex life might fuel the need for additional sexual outlets such as pornography (Peter & Valkenburg, 2009).

1.4.4 Summary

From reviewing the research, what is surprising is the general lack of critical consideration of the research conclusions stated, and the reduction of results to

behavioural processes without broader acknowledgement of the role of media effects or theoretical approaches to sexuality (Attwood, 2011). For example, research consistently seeks to correlate pornography use (the stimulus) with a range of factors (effects or response). Without a theoretical framework, these types of methodologies provide limited information and often rests upon implicit assumptions that certain kinds of sexual preferences and acts are morally or socially wrong (McKee, 2009⁴²). Additional shortcomings such as; failure within the research to consistently account for what might underlie observed results; the characteristics of the viewer; and their engagement with the material and the context within which it is viewed (Flood, 2009), limit knowledge and growth in the field. These broad criticisms have as a result prompted the emergence of critical and pro-pornography studies (Attwood, 2011).

1.5 Positive pornography studies

A small, but increasing number of studies are beginning to identify the possible positive outcomes of pornography use (Horvath et al., 2013). Some studies reporting positive associations with sexual satisfaction have been described above. A preliminary study by McKee (2007) asked a large sample ($N = 1023$) of Australians whether they felt pornography has a positive or negative effect on their attitudes towards sexuality. A strength of this study was that it allowed participants to provide their own opinions and beliefs, without being restricted to forced-choice response measures. Overall, 58.8% cited a very positive or positive effect, 34.6% felt it had no effect, and 6.8% felt it had a negative or largely negative effect. Of these positive effects, participants described how pornography helped them to feel less sexually repressed, increased their tolerance of other people's sexualities, provided pleasure, and increased their sexual repertoire. Negative effects included its influence over unrealistic expectations, relationship difficulties, and loss of interest in sex. These findings provide initial evidence that pornography effects are not restricted to the realm of harm, but there may be positive outcomes. The validity of these views requires further investigation.

⁴² Theoretical frameworks will be discussed in greater detail in the following sections.

A further study by Hald and Malamuth (2008) wished to explore self-perceived effects of pornography use using a new scale, the Pornography Consumption Questionnaire (PCQ), developed specifically for their research. Their study revealed that both men and women reported small to moderate positive effects of pornography use and very few negative effects. The authors asserted a belief that these results provide a challenge to the “exaggerated or unfounded” (pp.622) reports of negative effects on consumers. However, the authors stated in their hypotheses that they expected to find positive effects. With the statement of these a priori beliefs, and the utilisation of their own tool, it is perhaps not surprising their results were congruent with their initial hypotheses. Their findings may also be attributed to the nationality of the sample, who were Danish, a culture known to be a more liberal and sex educated society (Hald & Malamuth 2008).

In spite of these biases, more recent research has demonstrated similar positive results. A qualitative study by Kohut, Fisher and Campbell, (2016) aimed to extend previous correlational and experimental research that they believed was characterised by “a confirmatory search for the presumed harms of exposure” (pp.1). 430 participants responded to open ended questions concerning effects of pornography use. They found the participants most commonly reported “no negative effects” of pornography use on themselves, their partner or their relationship. Although some respondents perceived some negative effects such as decreased sexual interest, these were less frequent than the positives of pornography use. These included; improved sexual communicating, enhanced sexual comfort and more experimentation; findings consistent with earlier research (McKee, 2007). Although providing an alternative method to capture pornography effects, the study is still subject to similar limitations cited above (positive ideology and sample) and as such, further work is required to elaborate on the nature of the themes (Kohut et al., 2016).

1.6 Theoretical Framework

It is important to acknowledge and make explicit the current theoretical frameworks applicable and relevant in studies within the discipline of sex research. The lack of which constitutes a broad criticism of the research within

this field (Atwood, 2011). A multitude of models and theories could be applied to the study and understanding of the potential influences of pornography on a range of psycho-social outcomes and behaviour. Most relevant to the current study are the theories relating to sexual socialisation and media effects. Both of these attempt to outline why some individuals might be more susceptible to media content than others.

1.6.1 Theories of sexualisation

1.6.1.1 Sexual script theory (Simon & Gagnon, 1986)

This theory describes how human sexual behaviour is socially scripted (Simon & Gagnon, 1986). These scripts are conceptualised as mental representations that help us to make sense of our and other's behaviour (Wiederman, 2015). Central to this theory is the notion of sexual scripts. These are defined as "culturally available messages that define what counts as sex, how to recognise sexual situations, and what to do in a sexual encounter" (Frith & Kitzinger, 2001, pp. 210). These scripts are akin to manuals that inform us of what constitutes our sexuality. These dynamic scripts will vary depending on the individual's culture, sexual experience and situation (Löfgren-Mårtenson & Månsson, 2010).

Three variations of scripts have been identified: cultural, interpersonal and intrapsychic. Cultural scripts provide the context for and requirement of different roles and exist at the level of collective life (Gagnon & Simon, 1986). These cultural scripts are arguably not predictive of sexual behaviour and so in order to remain applicable across different cultures, must remain general and abstract (Wiederman, 2015). Interpersonal scripts are therefore required to adapt the material provided by the cultural script into scripts for context-specific behaviour (Gagnon & Simon, 1986). Interpersonal scripts are said to provide "the organisation of mutually shared conventions that allows two or more actors to participate in a complex act involving mutual dependence" (Simon & Gagnon, 1973, pp.18). Lastly, intrapsychic scripts represent the particulars of each individual's sexuality and influence the specific strategies for carrying out interpersonal scripts. These types of scripts include memories and fantasies and help the individual to work out how to enact interpersonal scripts within the context of cultural scenarios (Wiederman, 2015.)

Sexual scripts are believed to provide an important framework for guiding how sexually explicit material (SEM) may shape the development of particular sexual scripts. These may relate to acceptable sexual behaviour and criteria for sexual satisfaction (Morgan, 2011), subsequently influencing attitudes and behaviour. Pornography is an example of a cultural script, influenced by societal attitudes, which seem to be either negative, positive or ambivalent (Löfgren-Mårtenson & Månsson, 2009). It has been argued that the scripts most prevalent in pornography include those emphasising particular beauty standards, the constant sexual availability and appetites of men and women, and ease in which one should be expected to experience sexual pleasure (Bridges, 2010). For those who hold these sexual scripts, real-life sexual encounters are likely to fall short of their expectations, with potential consequences for sexual and relationship satisfaction.

To test this theory in relation to sexual media, Wright (2011) proposed an empirical model termed the 3AM model. This aimed to predict the influence of sexual media through the acquisition of sexual scripts (for example, “casual sex is acceptable”), followed by activation (exposure to sexually explicit material which reinforces this script) and application (initiating a one-night stand). Support for this model comes from research demonstrating the association between pornography use and an increase in casual sexual encounters or ‘hook ups’ (Braithwaite, Coulson, Keddington & Fincham, 2015), mediated via permissive sexual scripts.

Sexual script theory is advocated particularly within feminist research due to its departure from a biologically driven understanding of sexuality to a more social approach (Frith & Kitzinger, 2016). The empirical basis of the theory is subject to a number of limitations. A substantial proportion of the research underpinning the theory is self-report (Wiederman, 2015) which seemingly suggests a more cognitive rather than social account of sexuality (Frith & Kitzinger, 2016). Scripts uncovered in this research suggest a rigid, ordered approach to sexual encounters. This may be a result of the frequently used methodology whereby individuals are asked to generate lists of events they believe will typically transpire in a sexual encounter (Frith & Kitzinger, 2016). Despite these limitations,

it is still a widely utilised theory, underpinning a contemporary understanding of sexuality.

1.6.1.2 Social Comparison Theory (Festinger, 1954)

This theoretical framework refers to “any process in which individuals relate their own characteristics to those of others” (Buunk & Gibbons, 2007, pp.16). The theory describes how individuals will constantly compare themselves to others in a downward or upward fashion (Festinger, 1954). Upward comparisons occur when an individual compares themselves to someone they perceive as superior to themselves. Downward comparisons refer to when people perceive those they compare themselves with to be inferior. Upward comparisons are believed to be an influential factor to how media messages and images elicit negative effects (Tiggeman & Slater, 2003), such as body dissatisfaction (Van Vonderon & Kinnally, 2012).

Social comparison theory is thought to be a useful template for predicting the impact of SEM on a range of outcomes including sexual or body satisfaction (Peter & Valkenburg, 2009). Viewers of SEM may compare their sexual lives with the sexual practices depicted in SEM whose portrayals tend to be unrealistic or exaggerated. As social comparisons inform someone where they stand relative to others; this may elicit negative emotional reactions and dissatisfaction with the attributes they are comparing, that is, their sex lives and their bodies (Richins, 1991). Research, informed by this theory has been particularly interested in the influence of SEM on body image and satisfaction (see section 1.4.2). Content analyses of pornographic images reveal a high proportion of muscular male actors and slim and surgically enhanced women (McKee, et al., 2008). The findings reported by Cranney (2015) regarding penis dissatisfaction and Peter and Valkenburg (2014) regarding body dissatisfaction are believed to support the notion that upwards comparisons will have negative consequences and highlights the possible influence of SEM⁴³.

⁴³ For more critique of this theory, see extended discussion section 4.2.2

1.6.2 Media effects theories

1.6.2.1 Social Cognitive Theory (Bandura, 1977)

Social Cognitive Theory (SCT), formerly known as Social Learning Theory (SLT) is a multifaceted framework which describes how behavioural, personal and environmental factors influence people's behaviours and thought processes simultaneously and in a reciprocal fashion (Bandura, 1986). This contrasts with frequently cited unidirectional and causal relationships. SCT hypothesises the development of role models and behavioural expectations through the observation of others in social situations. Behaviour then becomes contingent on what the individual expected to achieve (Sirianni & Vishwanath, 2012). The theory describes the influence of mass media via two pathways, direct and indirect. The direct pathway refers to the promotion of change by informing, enabling and motivating its consumers. The indirect pathway, otherwise known as the socially mediated pathway, describes how media draws individuals into social networks that provide the incentive and guidance for desired changed (Bandura, 1986).

Of relevance to the current research, SCT also hypothesises a range of moderating and mediating variables between the stimulus (i.e. pornography) and response (i.e. psychosocial outcomes; Hald et al., 2012). This underpins the concept of reciprocal determinism which describes a "continuous reciprocal interaction between personal, behavioural and environmental determinants" (Bandura, 1977, pp.194). This suggests a bidirectional relationship whereby the individual's characteristics will affect the type of media they select and the extent to which they find it influential (Malamuth & Impett, 2001).

In relation to pornography, the behaviour of others is more likely to mimicked if they are viewed as being rewarded for such behaviour (Bandura, 1986). In pornography, behaviour is rarely punished and negative consequences are seldom portrayed. It may therefore act as a learning model with its viewers acquiring models of behaviour, roles and attitudes pervasive in SEM (Hald, et al., 2012). The theory has been empirically applied to research investigating pornography and sexual aggression (Check & Malamuth, 1986; Ferguson & Hartley, 2009). However, the concept of reciprocal determinism appears

underplayed in these explanations with failure to take into account the individual's interaction with the type of media they view and select.

1.6.2.2 The Cultivation Hypothesis (Gerbner & Gross, 1976)

The Cultivation Hypothesis refers to the social construction of reality perspectives. This theory argues a dose-response relationship between an individual's exposure to mass media and the extent to which they perceive media content as reflecting real-life (Potter & Chang, 1990). Critics have pointed out the evidence for this theory is generally weak (Potter, 2014) as the assumption of uniformity of messages across media is erroneous (Potter & Chang, 1990). Viewing dominance has subsequently been operationalised as the better predictor of cultivation. In accordance with this view, high consumers of SEM are thought to cultivate sexual preferences, expectations and behaviours that are similar to those portrayed in the SEM they view most frequently (Morgan, 2011).

1.6.2.3 The Media Practice Model (Brown, 2000)

This model provides a complimentary framework to SLT/SCT and describes how individuals are not merely passive recipients of sexual media and are unlikely to instantly believe what they see (Baams, Overbeek, Dubas, Doornwaard, Rommes & van Aken, 2015). The model proposes that people are active participants in their selection of sexual media and will tend to consume SEM that corresponds to their sexual identity and attitudes (Grant, 2013). The circular model describes how self-identity will affect media choices, and the attention to these media will affect self-identity (Brown, 2000). According to this theory, we would expect individuals to select SEM congruent with their pre-existing attitudes and perceptions (Baams et al., 2015). This reciprocal relationship appears to be commonly underplayed or ignored in research, depicting the negative influence of pornography, for example, its relationship with violence.

1.6.2.4 The differential susceptibility to media effects model (DSMM; Valkenburg & Peter, 2013)

Media effects theories are restricted by the limitations inherent in their empirical basis. The DSMM attempts to amalgamate existing theories to explain theoretically and empirically support why some individuals are more susceptible

to media effects than others (Piotrowski & Valkenburg, 2015). The aim is to provide a better understanding of how and why these individuals are more susceptible and how media effects can be enhanced or counteracted (Valkenburg & Peter, 2013). The model proposes the role of conditional media effects or moderators, which serve to enhance or reduce the effects. These conditional effects depend on three differential susceptibility variables: dispositional, developmental and social. The model also proposes the role of indirect effects or mediators, which provide the causal connection between variable and outcome. The third proposition relevant to the current study describes these differential-susceptibility variables (or moderating variables) can not only predict media use, but enhance or attenuate the media effect by influencing how the individual responds to the media. This is comparable to a type of moderated mediation whereby the strength of the mediation effect on a variable is contingent on the level of the moderator (Preacher, Rucker & Hayes, 2007). The model, like the media practice model, also describes the transactional nature of media use and effect as a reciprocal process, in which the media effect influences subsequent media use.

As this model is relatively new in its conception, it was expected that its empirical basis would be relatively sparse. Support for the model currently comes from media effects studies investigating vulnerability as opposed to susceptibility. As vulnerability contributes to the susceptibility paradigm, Piotrowski and Valkenburg (2015) argue that these types of study might be able to provide preliminary evidence for the model. For example, research has demonstrated the moderating role of an individual's development in differentiating between reality and fantasy in media (Piotrowski & Valkenburg, 2015), providing evidence for the model's prediction of developmental susceptibility.

1.7 Perceived realism and media effects

A key aim of media effects research is to identify for whom media influences are particularly powerful (Piotrowski & Valkenburg, 2015). Models of media effects, such as the DSMM (Valkenburg & Peter, 2013) have deconstructed the features of these effects. They have posited distinct characteristics which have helped to

identify critical variables to be investigated and provide the framework for which this current study is based. One of these key characteristics is the notion of media effects being indirect. An indirect effect suggests how the influence of an independent variable (for example, media use or oSEM-use) on other variables (for example, outcomes of media use, which in our case are body satisfaction, sexual satisfaction, psychological well-being and sexist attitudes) works via one or more intervening or mediating variables (such as perceived realism judgements) (Valkenburg, Peter & Walther, 2016). It has been argued that “if an indirect effect does not receive proper attention, the relationship between two variables of concern may not be fully considered” (Raykov & Marcoulides, 2012, pp.7).

Perceived realism as an indirect effect could be conceptualised as a cognitive or emotional process that occurs during or shortly after exposure to oSEM. In this way, we are going beyond identifying the relationship between the independent and dependent variables. Instead, attempts are being made to understand how individuals process the media that they view, and how this might account for any observable outcomes or media effects (Valkenburg et al., 2013).

Perceived realism as a concept has evolved from Cultivation Theory (Gerbner & Gross, 1976). This describes how our perceptions of reality are ‘cultivated’ or developed by the media that we view (Gerbner, Gross, Morgan & Signorelli, 1986). It was initially investigated within the field of television and has been cited as an increasingly important topic in media effects research (Punyanunt-Carter, 2008). Studies investigating the effects of media violence have demonstrated that it is more strongly associated with real-life aggression when it is realistically depicted (Huesmann, Moise-Titus, Podolski & Eron, 2003). With the acknowledgment of the increasing accessibility and use of pornography amongst the population, perceived realism seemed like an important variable that warranted further investigation.

Some argue that adolescents might be particularly susceptible to these effects as they lack the maturity, sexual experience and cognitive skills to differentiate between what is real and what is not (Peter & Valkenburg, 2010). The way in which adolescents make these realism judgements has been theorised to be

guided by their sexual scripts (Simon & Gagnon, 1986). When viewing oSEM, it is thought that the adolescent will compare what they see with their own scripts. However, depending on the degree of similarity, the level of perceived realism will vary (Peter & Valkenburg, 2014). Research suggests that oSEM has the power to influence these scripts (Štulhofer, Buško & Landripet, 2010). This may be particularly relevant as young people are accessing pornography at an increasingly early age and may not have the opportunity to compare what they see in pornography with real-life sexual experience. This consequently may enhance their susceptibility to internalise the “distorted” images they view (Horvath et al., 2013, pp. 43). As such, for those who view oSEM more frequently, there may be considerable overlap between the adolescent’s own scripts and what they see portrayed in oSEM. This overlap might therefore enhance their perception of the realism of oSEM.

Principles of persuasion are hypothesised to underlie the process by which perceived realism exerts its influence over outcome variables (Peter & Valkenburg, 2010). It has been argued that media deemed more realistic, triggers stronger persuasive effects than content thought to be unrealistic (Busselle & Greenberg, 2000). As such, it may appear more engaging and less likely be discounted (Peter & Valkenburg, 2010). This may improve the likelihood that messages portrayed in sexual media will be accepted. This association between perceived realism and stronger media effects has been demonstrated empirically in nonsexual (Potter, 1986) and explicit sexual media content (Peter & Valkenburg, 2006).

The construct of perceived realism is not without limitations and some have highlighted inconsistencies in conceptualisation, terminology and measurement (Busselle & Greenberg, 2000). Such inconsistencies pose potential problems for future perceived realism research. Busselle and Greenberg (2000, pp.10) conducted a review of the current literature and synthesised six conceptual dimensions:

- 1) *“Magic window*: The extent to which media allows one to observe ongoing life in another place or inside the set itself.”

- 2) “*Social realism*: The extent to which media content, whether real or fictional, is similar to life in the real world.”
- 3) “*Plausibility*: The extent to which something observed in media could exist in the real world.”
- 4) “*Probability*: The likelihood of something observed in media existing in the real world or the frequency with which it occurs.”
- 5) “*Identity*: The extent to which viewers incorporate media content into their real lives or involve themselves with content elements.”
- 6) “*Utility*: How much information or events observed in media are useful to the viewer in real-life.”

The measure of perceived realism utilised in the current study only factors in the social realism and utility dimensions (see measures section below), and as such, may not be a fully comprehensive assessment of perceived realism if all the above factors are deemed relevant. Busselle and Greenberg (2000) also argued that differences between the specificity of judgments are not explicit in measures of perceived realism. For instance, are perceived realism judgements made at a global level (for example, actors/situations in pornography are like people/situations in real-life)? Or is this at a genre level, (for example, actors/situations in a specific category of pornography are like people/situation in real-life)? Consideration of these limitations will lead to greater measurement precision (Busselle & Greenberg, 2000). Whilst important to hold in mind, for our research, perceived realism measurement was based on extant measures that have been utilised and validated within the field of pornography research.

1.8 Family communication about sex

The current research is not only interested in what might mediate the relationship between oSEM-use and psychosocial outcomes but considers what might influence the strength and/or direction of these indirect effects. The DSMM proposes that media effects can be enhanced or attenuated by individual difference and social-context variables (Valkenburg et al., 2016). The contexts in which we exist are believed to not only modify the way in which we perceive media but influence the media we seek out. One dominant context could be the

family environment and the relationships we have with family members. It is argued that the relationship between parent and child is one of the most influential and enduring relationships in the individual's life (Richards, 2013).

In studies of media violence, Lomonaco, Kim and Ottaviano (2010) advocated the implementation of media literacy training. In this training parents and caregivers are supported to teach their children how to critically appraise the media they are consuming, distinguish between real and fantasy, and understand the real-life consequences. They found in doing so, that young people were less vulnerable to the effects of media violence. This is supported by media effects research which suggests that the individual's perception of reality as portrayed in the media is less related to their direct experience and more to an indirect source of information such as their parents (Greenberg & Reeves, 1976).

It is plausible that the findings and processes related to media violence could be extrapolated to sexual media and oSEM. For example, if people are raised in environments where sex is rarely openly discussed; this might fuel negative perceptions of sexuality and enhance the individual's susceptibility to the influences of sexual media.

Young people cite oSEM as a source of education about sexuality (Peter & Valkenburg, 2010; Rothman, Kaczmarzsky, Burke, Jansen, & Baughman, 2015). In their qualitative study, Rothman et al., (2015) found that adolescents would use oSEM to learn about how to perform sexually. However, by doing so they would be more likely to engage in sex acts they would not have tried otherwise. Sex depicted in oSEM is more often than not, a fantastical representation of real sex and tends not to reflect good sexual health such as using condoms. If young people are turning to oSEM as a source of information, this may be a reflection of few alternative options, for example, not being able to speak to their parents (as described above). Research suggests that it is important for adolescents to be educated about the portrayal of sex in oSEM. If these adolescents have an enhanced awareness that oSEM only depicts one notion of sexuality, it may help place oSEM in a wider context and reduce the likelihood that it will be perceived as realistic (Peter & Valkenburg, 2010).

The importance of family in the sexual socialisation of young people can also be understood within a sexual script framework. Family communication about sex might moderate the perceived reality of oSEM via its influence over the developing person's sexual scripts. Communication about sex within families will be strongly influenced by a multitude of factors. This includes; the family's communication style; dominant cultural and familial discourses about sex; and the parent's own sexual scripts. These subsequently might have the power to influence the young person's sexual scripts and influence how they interact with the media they consume (Steele, 1999). This is hypothesised to subsequently influence their perceptions of realism when viewing oSEM. As described above, if young people are not able to freely talk about sex with their families, they might turn to oSEM as a source of information. This is likely as curiosity about sexual topics peaks in adolescence (Peter & Valkenburg, 2010). Early or more frequent use of oSEM might influence the development of that young person's sexual scripts (Štulhofer et al., 2010) making them more likely to be congruent with what the person might come across whilst viewing oSEM. This is then thought to increase the likelihood that they will perceive what they are viewing as realistic. However, if these scripts are developed and shaped within an environment where sexual topics are talked about freely and without shame, this might decrease the congruency of their scripts with what they view in sexual media and perhaps reduce the perceived realism of the media content.

1.9 Study measures

Careful and critical consideration was taken over the measures included in the study. How a study is designed is pertinent in shaping the results that are obtained (Hyde & Delamter, 2013). For instance, self-report measures, albeit invaluable to the field of research, are rarely wholly accurate. Responses are vulnerable to the influence of social desirability and self-presentational apprehensions (Gawronski & De Houwer, 2014). This is particularly significant in the field of sex research. An additional consideration is the way in which the measures are represented and how the questions are asked. Positioning and wording of questions is acknowledged to influence the way in which the individual

responds, a phenomenon known as priming. Priming has been shown to affect the individual's momentary self-representation which can correspond to behaviour effects (Wheeler, Demarree & Petty, 2007). The use of distress focused measures might prime the individual to answer in a more negative way than is truly representative of their beliefs and opinions. For example, the 'Pornography Distress Scale' (Bridges, Bergner & Hesson-Mcnnis 2003) measures the level of distress an individual experiences across a number of domains (self-esteem, emotional intimacy, sexual connection) as a result of their partner's pornography use. Brief reviews of studies that have utilised this measure have all revealed negative effects resulting in conclusions supporting the negative effects of pornography (Maas, 2010; Pyle & Bridges, 2012). The scale itself has not been subject to psychometric testing and as such, the reliability and validity of the scale is questionable. Other examples may include the use of mood measures such as Anxiety or Depression inventories (Beck, Epstein, Brown & Steer, 1988) which may prime individuals to believe that these mood states are associated with pornography use and alter their responses unconsciously (Grubbs, Volk, Exline & Pargament, 2015).

1.9.1 Perceived realism

Perceived realism as a concept has previously been applied to media effects research in the realm of television (Potter, 1988) and gaming (Malliet & De Schutter, 2011) and has only more recently been extrapolated to the field of sexual media (Peter & Valkenburg, 2010). A measure to assess perceived realism as a concept in television was first developed by Greenberg (1972). Greenberg (1972) devised a three-item scale which asked viewers to rate how realistic they believed the images depicted in television to be. Items included: "The people I see on TV are just like people I meet in real-life," "The programmes I see on the TV tell about life the way it really is," and "The same things that happen to people on TV happen to me in real-life". Rubin (1981) later revised this scale to incorporate negatively worded items, for example, "The TV does not show life as it really is" and named this modified scale the Perceived Realism Scale (PRS).

Measures of perceived realism have subsequently been extended, refined (Busselle, 2001; Konijn, Bijvank & Bushman, 2007) and adapted for their application to online sexual media (Peter & Valkenburg, 2006). Based on their previous research, Peter and Valkenburg (2010) made the distinction between perceived social realism (the extent to which the content of online sexually explicit material is perceived to be similar to real-life sex) and perceived utility (the extent to which online sexually explicit material is perceived to be a useful source of information about sex and relevant to real-world situations). They believed that to be able to capture both these domains within a single measure would provide a more comprehensive understanding of the role of perceived realism and provide the first indication of how and why sexual media might affect some individuals.

The perceived social realism of oSEM was operationalised using the following four items:

1. "Sex on the internet is realistic"
2. "Sex on the internet is similar to sex in real-life"
3. "Sexual situations depicted in sex on the internet often appear in real-life"
4. "In reality, the sex people have is like the sex that appears on the internet"

The perceived utility of oSEM was operationalised using the following three items:

1. "By watching sex on the internet, you can learn things you wouldn't learn otherwise"
2. "By watching sex on the internet, you learn how to behave when having sex"
3. "Sex on the internet gives you valuable information about sex"

Participants are asked to what extent they agree with the statements using a five-point Likert scale ranging from 1 (fully disagree) to 5 (fully agree) which provides an overall representation of the individual's perceptions of realism of oSEM. To my knowledge, no other measures of perceived realism have been developed or applied within this field. As a result of this dearth of research investigating this possible mechanism in pornography studies, critique of the scale is limited to hypothetical quandaries around the broadening of the sub-dimensions. These include the perceived probability of the events presented in oSEM occurring in

real-life or the perceived plausibility of what is presented and whether this could exist in the real world (Peter & Valkenburg, 2010).

1.9.2 Psychological well-being

Psychological well-being is a multi-faceted construct covering both emotional and behavioural functioning. There has been demand from researchers and practitioners for a measure suitable for monitoring mental well-being, not restricted by ceiling effects in population samples (Tennant, Hiller, Fishwick, Platt, Weich, Parkinson, Secker & Stewart-Brown, 2007). In response, the theoretically grounded Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) was developed to assess a wide conception of well-being. These included: emotional aspects, cognitive components, and relational and psychological functioning. This was found to be robust against these effects. Some argue that using a single scale to assess a concept as multi-dimensional and complex as psychological well-being might fail to account for other core components believed to be integral to well-being, such as purpose in life and spirituality (Tennant et al., 2007). Tennant and colleagues (2007), whilst acknowledging this critique, decided to only include items that were likely to be endorsed by UK populations. They were aware that the scale might need modification in future in line with expanded knowledge of what constitutes well-being. Additional critiques of measures of psychological wellbeing include difficulties in capturing the dynamic and context-dependent nature of well-being (Dodge, Daly, Huyton & Sanders, 2012). Consequently, the challenge of defining and capturing well-being as a construct remains.

The WEMWBS was chosen above other measures of well-being used in previous pornography research as it has proved to be a reliable and valid tool for measuring well-being in diverse populations (Stewart-Brown, Platt, Tennant, Maheswaran, Parkinson, Weich & Clarke, 2011). It was also selected due to its focus on positive mental health as opposed to distress (as mentioned above). For example, one study exploring mental health indicators and their association with pornography use included measures of depression and poor quality of life (Weaver, Weaver, Mays, Hopkins, Kannenburg and McBride, 2011).

1.9.3 Sexist attitudes

The acknowledgment of the progression in definitions of sexism (see section 1.4.1) has been reflected in the modification of measures assessing sexism constructs. The Ambivalent Sexism and Ambivalent Sexism Towards Men Inventories (Glick & Fiske, 1996; 1999) consider this more intricate conceptualisation of sexism and assess for both benevolence and hostility towards members of the opposite sex. As a result, these measures are increasingly used in sexism studies (Hald, et al., 2013; Kohut, et al., 2016).

Prior to this, the measure most commonly used to assess sexist attitudes was the Attitudes Towards Women Scale (AWS; Spence & e, 1972). This aimed to evaluate an individual's beliefs about the roles, rights and duties of women compared with men (McHugh & Frieze, 2006). Items on this measure included, "Sons in a family should be given more encouragement to go to college than daughters"" and "It is ridiculous for a woman to run a locomotive and for a man to darn socks". These are examples of the measure's more classic and perhaps outdated notion of sexism and its failure to account for sexism's subtle and ambivalent nature. This highlights the importance of considering instruments that adapt to evolving cultural developments and provide contemporary assessments of sexism.

The ambivalent sexism inventories have been widely used across cultures and are able to predict national indices of structural gender inequality in resources and power (Glick & Fiske, 2011). However, the heteronormative assumptions inherent within the measures constrain their application within non-heterosexual populations. There is acknowledgment, albeit limited, that benevolent and hostile sexism constructs can be endorsed by those in non-heterosexual relationships. These are thought to influence the extent to which they view their sexual orientation to be a significant deviation from the traditional gender roles established by society (Yi, 2015). A study by Warriner, Nagoshi and Nagoshi, (2013) applied the inventories to homosexual individuals (male and female) and found similarities between how gay and heterosexual men responded. Their explanation centred on an assumption that sexual orientation does not change how the mechanism of sexism occurs in men. Their study also revealed a correlation between sexism and homophobia in lesbians. This result was interpreted to be related to the socialisation of lesbians to traditional gender roles

and the belief that by not forming relationships with men, they may lose power (Warriner et al., 2013).

There do not currently appear to be specific instruments assessing sexism within non-heterosexual populations. Literature searches tend to reveal measures of sexism toward non-heterosexual samples such as the Modern Homonegativity Scale, (Morrison & Morrison, 2003) or Discomfort with Homosexuality, (Monto & Supinksi, 2014). For this reason, the ambivalent sexism inventories were considered acceptable for the current research.

1.9.4 Sexual satisfaction

The New Sexual Satisfaction Scale-Short Form (NSSS-S) developed by Štulhofer, Buško and Brouillard (2010), assesses global sexual satisfaction and behaviours that contribute to sexual satisfaction. It was originally developed as part of a larger project looking at the influence of pornography on the sexual socialisation of young people (Štulhofer, Landripet, Momčilović, Matko, Kladarić, & Buško, 2007). Distinct from similar measures, the NSSS-S is gender, relationship status and sexual orientation non-specific. This is a strength of the instrument, allowing for breadth of application (Štulhofer et al., 2010). Also, unique to this scale is its focus not only on individual satisfaction, but its focus on interactions with partners and specific behaviours that are associated with satisfaction (Mark, Herbenick, Fortenberry, Sanders & Reece, 2014). It is conceptually derived from sex counselling literature and assesses across five dimensions thought to be integral to sexual satisfaction: (1) sexual sensations, (2) sexual presence/awareness, (3) sexual exchange, (4) emotional connection/closeness, and (5) sexual activity. The NSSS-S has demonstrated good psychometric properties when compared with similar measures (Mark et al., 2014).

A limitation of the measure relates to the emphasis on partnered sexual encounters in its conceptualisation of sexual satisfaction. Items such as, “The way I react sexually to my partner” and “My partner’s sexual creativity” are examples of the measures assumption that sexual satisfaction is purely a result of dyadic interactions. Although this assumption does not underlie some items including, “My body’s sexual functioning” or “The quality of my orgasms”, overall

it precludes the applicability of the measure to those who are not in sexual relationships with other people. The notion of sexual satisfaction as a derivative of solo activity, that is, masturbation, is a concept that does not appear to be captured within measures of sexual satisfaction specifically. To address this in the current study, participants who were not currently, nor had ever been in a sexual relationship were invited to consider the items relevant to solo activity and specify “Not Applicable” to the items indicating partnered sexual activity.

1.9.5 Body satisfaction

Surprisingly few studies have investigated the impact of oSEM on body image satisfaction. Without a priori research suggesting a consistently used instrument, body image literature was referred to for guidance for the most appropriate measures. A meta-analysis (Cafri, Yamamiya, Brannick & Thompson, 2005) revealed the Body Dissatisfaction Subscale of the Eating Disorder Inventory (EDI-BD) to be a commonly used assessment tool (Garner, Olmstead & Polivy, 1983). The ‘Body Dissatisfaction’ subscale is comprised of nine items including, “I think that my stomach is too big” and “I think my thighs are too large”. Cronbach’s alpha for this scale suggested good reliability and internal consistency ($\alpha = .90$). The scale however, did not include items that might be influenced by oSEM exposure, such as, size and appearance of genitals or breasts.

As an alternative, the Body Area Satisfaction Scale (BASS; Cash, 2000) was considered. Validity of this measure has been established (Giovanelli, Cash, Henson & Engle, 2008) and it was deemed a good measure of evaluative body image. This satisfaction and dissatisfaction dimension was judged by the (current) authors to be a more useful conceptualisation of body image. When considering the impact of oSEM it is hypothesised that comparisons to the body types depicted in oSEM might be associated with levels of body satisfaction. This can be understood in light of numerous theoretical frameworks such as Social Comparison Theory (Festinger, 1954; and Sexual Scripts Theory, (Simon & Gagnon, 1986). Criticisms of this measure concerns the inclusion of an unweighted composite score and failure to consider that a specific physical attribute might be more influential to the individual’s evaluation of their own body

(Giovanelli et al., 2008). For example, someone's satisfaction with their "upper torso" might be perceived as less important than satisfaction with their "face". This limitation was raised by Peter and Valkenburg (2014) study in their choice to use the EDI-BD. To account for this, Giovanelli and colleagues (2008) conceived a revised version of the BASS to include a second rating dimension (from +1 = not at all important to +5 = extremely important). The BASS-R is scored as the mean of the evaluation multiplied by the importance. Although, similarly valid in its psychometric properties, the weighted BASS-R did not demonstrate improved incremental validity in comparison to the BASS. Instead, both were found to be highly correlated. Additionally, it could be argued that subjective importance is intrinsic to the individual's satisfaction judgements (Giovanelli et al., 2008). For these reasons, the original BASS was chosen to be included in the study's battery.

1.9.6 Family Communication about Sex

Examining communication about sexuality is a complex process and current instruments struggle to account for and assess factors that might influence if and when children talk to their parents. These factors might include communication style or how communications are embedded within the wider family processes and structure (Diiorio, Pluhar & Belcher, 2003). Recognition of these individual and systemic factors might allow for a more accurate interpretation of research findings and consequently permit a more accurate representation of sexual communication within families (Diiorio et al., 2003).

A review of the literature has not revealed a measure of family communication about sex that completely considers the aforementioned factors. However, the Family Sex Communication Quotient (FSCQ; Warren & Neer, 1986) does provide a comprehensive assessment of family communication across three domains: comfort, information and value. The 'comfort' dimension relates to dynamics within the family which foster comfort and ease of communication. This is regarded as integral as supportive climates have been attributed to the frequency of which information about sex is exchanged between parents and children (Warren & Neer, 1986). The 'value' dimension similarly assesses the perceived importance of the family role in learning about sexual topics and the 'information'

recognises utility of the family as a source of sexual learning. A potential limitation of its application in our study is its use of present tense as the participants completing the study were adults. Although potentially introducing retrospective recall bias, we altered the tense and asked respondents to think back to the communications, if any, they had with their parents when they were growing up.

Albeit a slightly older scale, the FSCQ was evaluated preferably to other measures of sexual communication such as the revised version of the Sexual Communication Scale (SCS; Somers & Canivez, 2003; Richards, 2013). In this scale, participants were asked to report what sexual topics they had communicated with their parents, and to what extent they felt comfortable doing so. The SCS demonstrated satisfactory psychometric properties (Somers & Canivez, 2003) but was too restrictive in that it specified the topics discussed, for example, “Abortion”, “Physical Development” and “Sexually Transmitted Infections”. The FSCQ on the other hand, was a broader measure and therefore could be individualised to account for whatever topics were or were not discussed. The use of a Likert-response scale within the FSCQ provided a continuous score which lent itself well to correlational research whereas the SCS asked for discrete ‘yes’ or ‘no’ responses which complicates further analysis.

2 Extended Methods

2.1 Overview

The following section provides a fuller account of the methods and analysis undertaken in the research. It will include the rationale for choosing a quantitative design, the philosophical underpinnings of the research and ethical considerations pertinent to sex research. An account of the analysis plan and supplementary analyses will also be outlined in this section.

2.2 Study design

This study utilised a cross-sectional, survey-based design. The purpose was to gather quantitative data capturing the sample's sexual demographics, use of oSEM, their beliefs about the realism of what they view and a range of psychosocial variables related to sexual functioning and well-being. Survey designs enable the collection and analysis of data from multiple respondents with the intention of generalising the findings to the wider population. Some critique the use of purely quantitative methods and the narrow focus of investigating the "effects" of pornography (Attwood, 2005) on individuals. They imply it to be far too simplistic. However, the aim of this study was to evaluate the claims and conclusions made by previous research using similar designs. A key focus was to determine whether findings from previous research would be replicated in the current study. As such, the chosen quantitative design was appropriate for this purpose. By investigating possible underlying mechanisms, the research also attempted to extend our understanding of these potential relationships rather than simply reducing them to "effects".

2.3 Philosophical assumptions

When determining the research paradigm, it is important to consider the theoretical assumptions about what constitutes knowledge (ontology) and the theoretical assumptions about how this knowledge is derived (epistemology).

These are vital concepts for creating a holistic understanding of how knowledge is regarded and inform the methodological strategies for uncovering it (Patel, 2015).

Quantitative research is commonly driven by a positivist paradigm, based on philosophical assumptions that there is a single reality or truth which can be objectively measured. Research based on these assumptions tends to be characterised by its emphasis on empiricism, theory testing and the development of universal laws (Punch, 2013). Even if a research method is purely quantitative, some argue that it can never be wholly objective. Humans process information with some degree of subjective interpretation. It has therefore been acknowledged that complete objectivity, as assumed by the positivist perspective, should be replaced by situated knowledge and the recognition that knowledge cannot be regarded as universal (Haraway, 1991, as cited in Westmarland, 2001).

Post-positivism refers to this shift away from and rejection of positivist assumptions. The most common post-positivist philosophy is critical realism. This perspective shares with positivism the notion that knowledge should be positively developed and applied (Cruickshank, 2011). It differs in that it recognises that observation is fallible and theory is revisable (Trochin, 2006). The current research, albeit quantitative in design, does not lend itself entirely to a positivist paradigm through its querying of observable 'cause and effect' relationships. Critical realist methodologies advocate the importance of triangulation across various sources in attempt to better understand reality. The lack of triangulation within the current study might again, suggest a positivist position. However, our study's intention of uncovering possible underlying processes appears congruent with the critical realist notion of 'stratified ontology'. This draws a distinction between the realm of observable events and the realm of underlying causal principles which are not directly observable (Cruickshank, 2011). Critical realists believe it is only through the recognition of these unobservable processes that it is possible to empirically explain causal effects.

2.4 Ethical issues

2.4.1 Ethical approval

Ethical approval to conduct the study and recruit participants through social media and poster advertising was sought and granted by the University of Lincoln's Ethics Committee (Appendix B). The research was conceived and conducted in line with the British Psychological Society's (BPS) code of Human Research Ethics (BPS, 2010):

2.4.2 Respect for the autonomy and dignity of persons

The study endeavoured to include all those willing to take part regardless of gender, race, ethnicity, education, disability, religion, marital status or sexual orientation. The only exclusion was based on age, in line with the United Kingdom's legal status for pornography consumption. The nature of the research was fully explained to participants. Prior to the start of the survey the participants were provided with an information page detailing the purpose and nature of the study (Appendix E). This allowed the participants to be able to make an informed decision about whether they consented to take part. It was highlighted to individuals that their participation was entirely voluntary and that they had the right to withdraw at any point. If they chose to withdraw, they were informed that they would still be entitled to enter the prize draw. This was clearly explained in the consent process and aimed to alleviate any pressure they may feel to continue to participate in the study. Participants were also informed of their right to remove their data from the project within a specified time period.

2.4.3 Scientific value

The study would contribute to a growing field of research, examining the impact of a pervasive media phenomenon. Relatively little is still known about human sexuality and misinformation can give rise to stereotypes and prejudice. Research in this controversial field is therefore important to systematically test these beliefs and opinions and produce more accurate knowledge (Hyde & DeLamater, 2013). The current project evaluated previous studies and developed its design based on the limitations of this previous research. This was to ensure

a methodologically robust and quality project that will contribute to the knowledge and understanding of oSEM and its effects.

2.4.4 Social responsibility

In undertaking this project, I have reflected on how it may be received by the scientific community and what its clinical relevance may be deemed to be. The results of the research will be published and disseminated to interested parties. This will allow the interpretations made by the researchers to be subjected to peer review and feedback.

2.4.5 Maximising benefit and minimising harm

Given the private and somewhat controversial nature of the study, it was expected that some respondents might experience some discomfort or embarrassment when completing the measures. We aimed to address this and reduce any risk of potential harm to its participants by fully informing them prior to taking part of what the study will involve. Their right to withdraw at any stage was emphasised. Steps were taken to prevent accidental exposure to any material that could be considered sensitive or harmful to those below the age of 18. These included only advertising in areas accessed mainly by those aged 18 and above, such as university buildings; highlighting the age restriction when posting on social media; and only sharing the link with those known to be over the age of 18. The measures were self-report and participants were not exposed to any explicit content. We acknowledged that asking individuals to reflect on their sexual experiences, preferences and oSEM consumption may cause some psychological stress. To address this, participants were reassured of the confidentiality of the study and how their data would be protected. Details of the researchers were provided if participants desired to be debriefed or needed any additional support. However, no participants made contact during the course of study, suggesting this was not required. Contact information for relevant supportive services such as RELATE and the Samaritans were provided on the participant information page. Given that the sample were self-selecting, we anticipated that the participants might be more open about discussing their sexuality and less likely to be adversely impacted. When balanced with the

potential benefits the results from the study might have to offer, it could be concluded that the benefits may be greater than any possible harm.

2.5 Data collection

All data was obtained via a secure online survey. This was to enable the anonymity and confidentiality of its respondents and allow for a wide geographical distribution of the questionnaire. Survey designs also benefit from the elimination of extraneous variables that might influence responses such as characteristics of or the style of the interviewer (Hyde & DeLamater, 2013). Some may argue that this type of indirect data collection may be problematic based on the lack of control researchers have over the various processes. For example, consent, completion of the questionnaire or the ability to address any queries participants might have during its completion. To account for this, participants were provided with contact details of the principal researcher for if they had any questions or concerns, with the option of leaving the survey and finishing it at a later time. The full questionnaire was piloted beforehand to check for clarity, coherence and inclusiveness.

2.6 Participants

2.6.1 Inclusion and exclusion criteria

The study invited individuals of all genders and sexual orientations to take part. In acknowledgement of the growing diversity and breadth of categorisation within the realm of gender identity and sexuality, we allowed participants to provide their own terminology for how they defined these characteristics. This added heterogeneity within the sample might be criticised by some for preventing the generalisability of the findings. However, the Research Governance Framework for Health and Social Care states that research must reflect population diversity (Department of Health, 2001). This statement arose from the concern that research generally under-represented a number of cultural and ethnic groups (Allmark, 2004). In support of this, a recent review of studies using a variety of

methods for assessing sexual orientation found that women and bisexuals in particular, were under-represented.

The current legal age for oSEM viewing and use in the United Kingdom is 18 years, and as such, this was the minimum age for participation in the study. Participants were required to confirm their age before commencing with the survey. Although research has demonstrated high levels of pornography consumption amongst those under the age of 18 (Horvath et al., 2013), the study chose to specify this minimum criterion. Our study was interested in the influence of exposure to pornography amongst those who were the first generation to have reached maturity after internet access became widely available and contrast this was those for whom pornography was not so easily accessible.

The volume and frequency of oSEM-use by the individual was not specified as a pre-requisite for participation. Individuals were invited to take part regardless of whether they were high users of internet pornography or whether they had never accessed it before in their lives. Similarly, not specified were the types or genres or pornographic themes viewed by the participants who were invited to share their preferences during the survey. Participants were however asked to confirm that the pornography they viewed was legal.

2.7 Sample size

Based on a nominal primary analysis, to provide sufficient power (80%) to detect a mediating effect involving a moderate effect size (.39), the minimum number of participants recruited for the study was identified as 116 (Fritz & MacKinnon, 2007). This was based on a review of 166 mediation studies, 22 of which used the indirect effects method of mediation (as with the current study). These reported sample sizes ranging from 115 to 285. This number was deemed to be realistic and obtainable based on the broad criteria for inclusion.

2.8 Recruitment

Participants were recruited using a snowball sampling strategy. This describes the expectation that participants will forward the survey link to eligible friends and colleagues, who will forward it on again and so on. The survey was advertised through social media, posters placed around the host university, and using websites where you can submit your study free of charge. For example, “call for participants” and “online psych research”. When advertising in public places, careful consideration was given to the content of the poster to minimise harm of accidental exposure. With the use of social media, it was also important to consider how best to target adults and limit exposure for under 18s. When posting on social media, the description of the study highlighted the age restrictions and asked individuals not to proceed if they did not meet this. To ensure only those over the age of access the website, the online survey contained an initial information and consent page, asking participants to confirm they were over the age of 18 before proceeding. Despite the precautions taken, it was not entirely possible to have full control over who may access the survey as it is not possible to verify age beyond self-report. This was a potential limitation of the recruitment strategy.

The use of internet as a medium for research recruitment has proliferated in recent years (Nosek, Banji & Greenwald, 2002). Previous concerns around the representativeness of samples who accessed the internet have attenuated based on increasing evidence for the diversification of its users (Hewson & Laurent, 2008). Although some biases are likely to remain, such as, users being younger and better educated (Dutton & Blank, 2011), there is robust evidence that internet research can produce valid and reliable data, comparable in quality to data gathered offline (Hewson, 2014).

2. 9 Statistical analysis

2.9.1 Correlation analysis

IBM SPSS v22 was used to analyse the data. Correlational analyses were first run to determine any associations between the variables under examination.

These variables were defined as oSEM-use, perceived realism, body satisfaction, sexual satisfaction, psychological wellbeing, ambivalent sexism, ambivalent sexism towards men and family communication about sex. Executing multiple comparisons has the potential to inflate the Type I error-rate. To account for this, the Holm-Bonferroni method was applied to control for Type-I error, whilst preserving power. This method adjusts the alpha criterion in a step-wise fashion and ordered such that the smallest p value is tested against the most conservative criterion. This method is commonly used in research investigating multiple correlations and is thought to be a more balanced and conservative approach to the standard Bonferroni correction. This standard correction, while able to protect against false positives, also reduces power (Abdi, 2010).

2.9.2 Indirect effects

Following identification of any associations between oSEM-use and outcomes described above, mediation analyses were conducted to determine the role of perceived realism in accounting for the relationship between oSEM-use and psychosocial outcomes. Mediators (M) are conceptualised as mechanisms through which variable X exerts its influence on variable Y (Hayes, 2013). According to Baron & Kenny (1986, pp. 1176), the model assumes a direct impact of the independent variable Path c), the impact of the mediator (Path b) and a path from the independent variable to the mediator (Path a). For mediation to occur the following conditions must be met:

1. "Variations in levels of the independent variable significantly account for variations in the presumed mediator (i.e., Path a)."
2. "Variations in the mediator significantly account for variations in the dependent variable (i.e., Path b)."
3. "When Paths a and b are controlled, a previously significant relation between the independent and dependent variables is no longer significant, with the strongest demonstration of mediation occurring when Path c is zero."

This original notion of mediation has evolved, with the acknowledgement that it is possible for a mediating variable to be causally situated between X and Y , even if X and Y are not directly associated (Hayes, 2009). In these cases, the mediating

effect might be more accurately described as *X*'s indirect effect on *Y* through *M*. This makes sense when considering that many different paths of influence might constitute a total effect (Hayes, 2009) and by not testing for it, there is the potential to miss the mechanism by which *X* exerts some kind of effect on *Y*. This was important to bear in mind in the result of no direct associations between oSEM-use and the outcome variables assessed (as was the case in the current study).

2.9.3 Moderated mediation

Following the identification of any indirect effects, factors influencing or moderating this relationship were explored. Moderation describes the way in which *X*'s effect on *Y* might vary as a result of a third or moderating variable, *M*. A moderator therefore has the potential to either enhance or attenuate the effects of *X* on *Y* and is modelled as the interaction between *X* and the moderator variable (Hayes, 2009). The analysis aimed to combine both methods of mediation and moderation to create a moderated mediation model (Muller, Judd & Yzerbyt, 2005). Moderated mediation models focus on the estimation of the interaction between the moderator and pathways that define the indirect effects (Hayes, 2009). In others words, the strength of the mediator depends on the moderator (Muller et al., 2005). Moderated mediation is demonstrated when the mediating variable (in this case, perceived realism) responsible for producing the effect of the independent variable (oSEM-use) on the dependent variables (body satisfaction, sexual satisfaction, sexist attitudes and psychological well-being) depends on the value of the moderator variable (parental communication about sex).

2.9.4 Group difference analysis

Analysis of group differences was conducted using independent *T*-tests. The sample was divided into two age groups; the first including participants aged 18 to 24 and labelled "Generation Sex" and the second including participants aged 25 and above labelled "Non-Generation Sex". This was to allow for the comparison between those individuals who were the first cohort to have progressed through adolescence after internet access in the UK became largely

ubiquitous, and who therefore grew up with far greater accessibility and availability of oSEM than any previous generation.

2.9.5 Post-hoc analyses

Separate *T*-tests were conducted to determine whether:

- There were differences between those who viewed oSEM for the first time prior to first sexual experience and those whose first sexual experience occurred before they first accessed oSEM.
- There were differences between those of different sexual orientation as this may contribute to the heterogeneity of the sample

The correlation analysis was also repeated to see whether an estimation of overall frequency of exposure (current age minus age of first oSEM-use multiplied by the frequency) had an influence over the outcome variables.

2.9.5 Assumptions of parametric testing

Prior to primary and post-hoc analyses, data were tested to ensure it met the assumptions for parametric testing with reference to testing procedures described in Field (2013). Any violations identified would be corrected for by using non-parametric methods, bootstrapping (Efron & Tibshirani, 1993, as cited in Field, 2013) or excluded from the analysis. Bootstrapping corrects for a lack of normality within a dataset (commonly found within sex research samples; Hyde & DeLamater, 2013) by estimating the properties of the sampling distribution from the sample data (Field, 2013). Specific details of the assumption checking for this data set will be described in the proceeding results section.

2.9.1.1 Assumption of normality

This assumption was tested visually using histograms and quantile-quantile (Q-Q) plots. Q-Q plots map the cumulative probability of a variable against the cumulative probability of a normal distribution. These plot the observed data values against the expected data values and any deviation between the two suggests a deviation from normality (Field, 2013). Although a common and easy method for assessing normality, they are not sufficient to provide decisive evidence that the assumption has been upheld (Razali & Wah, 2011).

Normality was therefore subjected to further testing using the Shapiro-Wilk test as this has been shown to be the most powerful test for all types of distribution and sample sizes (Razali & Wah, 2011). This test compares the scores of the sample to a normally distributed set of scores with the same mean and standard deviation (Field, 2013). If the test reveals a non-significant result, this suggests that the sample is likely to be normally distributed.

2.9.1.2 Outliers

Outliers refer to data items that differ significantly from the rest of the sample and have the potential to disproportionately influence the subsequent analysis. These were inspected visually using boxplots. Any identified outliers were examined to assess the validity of the data, determining the decision whether to include or exclude that data. Addressing the influence of outliers is thought to be particularly pertinent in correlation research (Osborne & Overbay, 2004) based on their potential to adversely affect the magnitude and accuracy of correlations.

2.9.1.3. Linearity

Linearity is an integral assumption of correlation research and refers to the postulation of a linear relationship between two variables. This was assessed by visually examining scatterplots to determine the existence of a linear relationship.

2.9.1.4 Homogeneity of variance

Homogeneity of variance describes the assumption of equal variances between two groups (e.g. when comparing two or more groups of data). With correlational data, it describes the assumption that the outcome variable (in our case, body satisfaction, sexual satisfaction, well-being and sexist attitudes) should be stable at all levels of the predictor variable (oSEM-use). Lack of homogeneity introduces bias and inconsistencies which can influence model's parameter estimates and accuracy of the test statistics (Field, 2013). When performing group difference analysis (*T*-tests), variance was assessed for using Levene's test for equality of variance. If this test produces a significant result ($p < 0.05$), this suggests a violation of the assumption. Non-significance ($p > 0.05$) implies equal variance between groups and that the assumption has been upheld.

2.9.1.5 Absence of Multicollinearity

Multicollinearity occurs when there is a strong correlation amongst predictor variables, making it difficult to determine the relative importance of each variable (Field, 2013). This can be assessed by examining the correlation matrix for any variables that are highly correlated (above .80).

3 Extended Results

3.1 Overview

This section will detail supplementary tests not included in the journal paper. These included: ensuring the data's integrity through checking the assumptions of the statistical analyses undertaken, additional group difference and correlation analysis to help comprehend the main findings and descriptive data captured about the participant's experience and perceptions of their sex education.

3.2 Assumption checking

Data was first assessed for outliers by examining boxplots for each variable. Outliers were demonstrated for the variable of age, with participants over the age of 60 being classed as such. The decision was made to retain these cases as the responses were still valid and no upper age limit was specified as part of the inclusion criteria. Two outliers were identified for the variable oSEM-use. These participant's data were examined and although they represented more extreme values for this particular variable, this was not consistent across the remaining variables, and as such their data was included. No further outliers were identified.

3.2.1 Correlation data

The assumption of normality was tested using the Shapiro-Wilk (SW) test and visual examination of Q-Q plots. Review of the SW test suggested scores for the variables psychological wellbeing [$SW(272) = .99, p = .215$], sexual satisfaction [$SW(272) = .99, p = .152$] and body satisfaction [$SW(272) = .99, p = .248$] were normally distributed. However, oSEM-use [$SW(272) = .89, p = .000$], perceived realism [$SW(272) = .99, p = .012$], ambivalent sexism [$SW(272) = .014, p = .014$], ambivalent sexism towards men [$SW(272) = .99, p = .024$] and family communication about sex [$SW(272) = .89, p = .000$] were significantly non-normally distributed. The Q-Q plots seemed consistent with this. To correct for lack of normality amongst certain variables, bootstrapping was applied. This technique estimates the properties of the sampling distribution from the sample

data, and adjusts the parameter estimates to produce bootstrap confidence intervals (Wright, London & Field, 2011).

Linearity was inspected visually. The data points appeared to be clustered within a linear direction for each of the variables with no apparent curvature or funnelling. It could be concluded that the assumption of linearity was met. Multicollinearity was assessed by running correlations between the variables. No correlation exceeded the value of 0.80, which infers this assumption was also met.

3.2.2 Group differences: *Generation Sex vs Non—Generation Sex*

The assumption of normality was again tested using the Shapiro-Wilk (SW) test and visual examination of Q-Q plots. For the Generation Sex group, perceived realism [$SW(88) = .99, p = .647$], body satisfaction [$SW(88) = .99, p = .457$], sexual satisfaction [$SW(88) = .99, p = .380$], well-being [$SW(88) = .99, p = .540$], ambivalent sexism [$SW(88) = .98, p = .201$], and ambivalent sexism towards men [$SW(88) = .98, p = .102$] were normally distributed. oSEM-use [$SW(88) = .92, p = .000$] and family communication about sex [$SW(88) = .95, p = .001$] were not normally distributed.

For the Non-Generation Sex group, body satisfaction [$SW(194) = .99, p = .493$], sexual satisfaction [$SW(184) = .99, p = .309$] and wellbeing [$SW(184) = .99, p = .555$] were normally distributed. oSEM-use [$SW(184) = .86, p = .000$], perceived realism [$SW(184) = .983, p = .026$], ambivalent sexism [$SW(184) = .98, p = .021$], ambivalent sexism towards men [$SW(184) = .99, p = .043$] and family communication about sex [$SW(184) = .94, p = .000$] were not normally distributed. To correct for lack of normality amongst certain variables, bootstrapping was applied.

Levine's test of equal variance was conducted to assess for equal variance between the groups (Generation Sex vs. non-Generation Sex). Equal variance was indicated by non-significance for oSEM-use, $F(1, 272) = 2.10, p = .15$, perceived realism, $F(1, 272) = 1.07, p = .30$, body satisfaction, $F(1, 272) = 0.70, p = .40$, sexual satisfaction, $F(1, 272) = 2.18, p = .14$, wellbeing, $F(1, 272) = 0.22, p = .64$, ambivalent sexism, $F(1, 272) = 0.61, p = .43$ ambivalent sexism towards

men, $F(1, 272) = 0.10$, $p = .75$, and family communication about sex $F(1, 272) = 1.08$, $p = .30$.

3.3 Post-hoc analyses

To attempt to understand why no associations between oSEM-use and body satisfaction, psychological well-being, sexual satisfaction, sexist attitudes and family communication about sex were revealed, additional analyses were run.

3.3.1 Sexual experience and oSEM-use

In the journal paper and extended background, reference is made to the belief that pornography has the power to influence the sexual socialisation of the individual, perhaps through the acquisition of certain sexual scripts (Bridges, 2010), or other media effects (Peter & Valkenburg, 2013). If this were the case, it might be expected that sexual experience may modulate the influence of oSEM (Peter & Valkenburg, 2009). As such, the hypothesis of whether having a sexual encounter before first accessing oSEM might influence how oSEM is related to the outcomes under investigation, was tested. Although it is believed that young people are accessing oSEM at an increasingly young age (Horvath et al., 2013), this does not appear to be the case for the current sample, whose average age of first use was 18.6 years. The average age of first sexual experience, however was 16.2 years. To test this hypothesis, the sample were separated into two groups: the first consisting of those who had experienced their first sexual encounter prior to viewing oSEM for the first time, and the second of those who viewed oSEM before they had experienced a “real-life” sexual encounter. If differences were revealed, additional moderation analyses would be run.

Table 6***t*-test Results Comparing Sex first and oSEM first**

	Sex First		oSEM first		<i>t</i> Test	BCa 95% Confidence Intervals	
	M	±SD	M	±SD		Lower Bound	Upper Bound
oSEM-use	8.28	5.05	12.75	5.32	6.22*	3.13	5.66
Perceived realism	16.52	4.34	16.27	4.47	-0.41	-1.48	1.04
Body Satisfaction	24.39	5.80	25.68	5.66	1.61	-0.34	2.80
Sexual satisfaction	44.54	10.10	44.43	9.26	-0.09	-2.67	2.42
Well-being	43.66	8.17	44.59	7.93	0.82	-1.54	3.10
Total ASI	2.51	0.64	2.44	0.71	0.30	-0.26	0.13
Total AMI	2.37	0.62	2.33	0.63	0.67	-0.21	0.13
FCSQ	47.26	13.66	48.42	13.63	0.85	-2.32	5.19

* $p < .001$

The results of the *t*-test revealed that on average, those who watched oSEM prior to their first sexual experience, viewed oSEM more frequently ($M = 12.75$, $SD = 5.32$) compared to those whose first sexual encounter preceded their first use (if any) of oSEM ($M = 8.28$, $SD = 5.05$). This difference, 4.47, BCa 95% CI [3.13, 5.66) was significant, $t(272) = 6.22$, $p < .001$ and represents a medium effect size $r = 0.35$. No other group differences were revealed. This result suggests that the age of which someone first accessed oSEM may have had a significant impact

on their subsequent oSEM-use, if viewing commenced earlier than “real-life” sexual activity. Earlier viewing of oSEM had no impact on any of the other variables examined. Therefore, no additional analyses were conducted testing this hypothesis.

3.3.2 Sexual orientation

We acknowledged that sexual orientation might influence how the participants respond to the sexism inventories as items assume heterosexuality e.g. “Every woman needs a man who will cherish her”. To account for this, sensitivity analyses were conducted to determine whether there were significant differences in how heterosexual and non-heterosexual participants would respond.

Table 7

t-test Results comparing heterosexual and non-heterosexual sexism

	Heterosexual		Non-Heterosexual		t Test	BCa 95% Confidence Intervals	
	M	±SD	M	±SD		Lower Bound	Upper Bound
Total ASI	2.58	0.60	2.31	0.84	3.99*	0.18	0.73
Total AMI	2.43	0.60	2.05	0.63	0.67*	0.16	0.60

* $p < 0.01$

t-tests revealed a significant difference between these two groups. On the measure of ambivalent sexism (ASI), those in the ‘heterosexual’ group ($M=2.58$, $SD=0.60$) scored higher than those in the ‘non-heterosexual’ group ($M=2.13$, $SD=0.84$). This difference, 0.45, Ba 95% CI [0.18, 0.73] was significant, $t(273) = 3.99$, $p < .01$. This represents a small to moderate effect size, $r = 0.23$. Similarly, on the measure of ambivalent sexism towards men (AMI), those in the ‘heterosexual’ group ($M=2.43$, $SD = 0.60$) scored higher than those in the ‘non-

heterosexual' group ($M=2.05$, $SD=0.63$). This difference, 0.37, Ba 95% CI [0.16, 0.60] was significant, $t(273) = 3.53$, $p < .01$. This represents a small to moderate effect size, $r = 0.21$.

As a result, the mediation analyses were re-run with the exclusion of the ASI and AMI data from the 'non-heterosexual' group to examine whether the model was sensitive to the inclusion of this data. With the exclusion of non-heterosexual data, perceived realism no longer mediated the relationship between oSEM-use and ambivalent sexism, $b = .021$, BCa 95% CI [-.003, .060], $p = .162$. Similarly, perceived realism no longer mediated the relationship between oSEM-use and ambivalent sexism toward men, $b = .021$, BCa 95% CI [-.002, .063], $p = .162$.

This demonstrates a particular limitation of the sexism variable and the measure chosen to capture the sample's sexist attitudes. Additional steps, such as removing some of the items from the measure thought to be particularly heteronormative, were attempted. However, this did not alter the result. Given the previous rationale about inclusive research (see section 2.6.1) and the use of this ASI and AMI in previous research with non-heterosexual samples (see section 1.9.3) the decision was made to include all the data in the main analysis.

3.3.3 Exposure Product

The journal paper frames a question of whether overall exposure to oSEM might account for differences between those who are and not influenced. To test this hypothesis, an estimation of the individual's overall exposure product was computed. The participant's age at which they first accessed pornography was taken away from their current age and multiplied by their reported frequency of use. Their 'exposure product' was included in the correlation analysis to determine whether this revealed any additional relationships.

Table 8

Correlations between oSEM-use, perceived realism, psychosocial outcomes, family communication about sex and overall oSEM exposure

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. oSEM-use		.18*	.13	-.00	.07	.02	-.07	.04	.76*
2. Perceived realism			-.02	-.01	-.02	.22*	.18*	-.02	.13*
3. Body satisfaction				.28*	.46*	.05	-.01	.02	.12
4. Sexual satisfaction					.32*	-.10	-.12	.01	-.01
5. Wellbeing						-.12	-.08	.04	.02
6. Total Ambivalent Sexism							.70*	-.05	.12
7. Total ambivalent sexism towards men								-.09	.00
8. FCSQ									-.00
9. Overall exposure									

*Correlation is significant at $p = .004$ (2-tailed)⁴⁴

As can be seen in table 8, inclusion of the exposure product did not produce any correlations in addition to the current oSEM-use variable. Current oSEM was strongly associated with overall exposure ($r = .76$, $p < .01$). This does not evidence a more accurate measurement of oSEM-use overall and so was not included in the main analysis.

3.4 Additional moderating variables

3.4.1 Pornography as a form of sex education

Receipt and quality of sex education was originally considered as an additional moderating variable to be included in the moderated mediation model. Young people cite oSEM as a source of education about sexuality (Peter & Valkenburg, 2010; Rothman, et al., 2015). Research is finding that young people are

⁴⁴ Bonferroni adjustment applied to P value = 0.004

increasingly drawing on pornography, expecting it to educate and give information regarding sexual practices and expected sexual behaviour (Horvath et al., 2013). If young people are turning to oSEM as an education resource, this may be a reflection of the current content and quality of our country's sex education curriculum. Research suggests that it is important for adolescents to be educated about the portrayal of sex in oSEM but it also suggests they are dissatisfied with their sex education they are receiving (Horvath et al., 2013). The current study initially aimed to assess the quality and content of the participant's sex education, to determine whether, like family communication about sex, this influenced the extent to which individuals believed oSEM to be a realistic portrayal of sex.

Descriptive information was collected and represented in Table 9 below.

Table 9

Participant's sex education information and experience

Characteristic	<i>n</i>	(%)	Mean	±SD	Range	Median
Age of formal sex education (valid <i>n</i> = 237)						
3-7	5	2.1				
8-12	117	49.4				
13-17	115	48.5				
Context of formal sex ed* (valid <i>n</i> = 237)						
School (religion-based)	37	15.2				
School (non-religious)	216	91.1				
Parents/guardians	39	16.5				
Religious groups	2	0.8				
Seminar	4	1.7				
Family planning clinic	18	7.6				
Other**	7	3.0				

Topics (valid <i>n</i> = 243)				
Biology & reproduction	215	88.5		
Safety & health risks	223	92.0		
Social issues	92	37.9		
Relationships, pleasure & reciprocity	79	32.5		
Weighted focus of sex ed (valid <i>n</i> = 247)			2.00	0.85
			1-5	2.00
1. Fully risk & sexual health	70	28.3		
2. Mostly risk & sexual health	122	49.4		
3. Balance between risk/sexual health & relationships/pleasure	43	17.4		
4. Mostly relationships/pleasure	9	3.6		
5. Fully relationships/pleasure	3	1.2		
Quality of sex education (valid <i>n</i> = 247)			3.49	0.98
			1-5	4.00
1. Excellent	4	1.6		
2. Good	40	16.2		
3. Neither good nor bad	71	28.7		
4. Poor	96	38.9		
5. Very poor	36	14.6		
Main source of sex education (valid <i>n</i> = 243)				
Friends	125	51.4		
Internet (unspecified)	47	19.3		
Internet (not pornography)	12	4.9		
Pornography (internet, DVD, magazines)	13	5.3		

Books & magazines	62	25.5
TV	4	1.6
School	17	7.0
Parents	18	7.4
Siblings	5	2.1
Personal experience	12	4.9
Other****	3	1.2

*participants were able to endorse multiple responses so frequency may not total 100%

**other include: gynaecologist

***Biology & reproduction topics includes: accurate male and female anatomy, pregnancy

Safety & health risk topics include: Sexually transmitted disease, contraception

Social issue topics include: gender, sexuality, consent, body image, pornography

Relationships, pleasure & reciprocity topics include: Relationships, masturbation, sexual pleasure

**** other include: family planning clinic, LGBT group

The results reveal a clear trend toward sexual education programmes characterised by risk focus, health and prevention as opposed to relationships, pleasure and reciprocity. Although a possible reflection of the average age of the cohort ($M = 30.1$) and the influence of retrospective recall bias, this does suggest that sexual education programmes may have not equipped young people with knowledge about sexual pleasure, masturbation and pornography. One might assume that without specific teaching, it is unsurprising if young people are seeking out alternatives. Of these alternatives, although pornography is only cited in 5% of the case, a further 25% reported to use the internet as a source of education and over 50% cited friends as their main source. This does not rule out a possible indirect use of pornography as a sex education resource. For example, it is not possible to determine what the “friend’s” main source of education was and whether this included pornography. School was only mentioned as a main source by 7% of the sample.

3.4.1.2 Rationale for exclusion

Sex education as a variable was not chosen to be included in the main analysis for a number of reasons. There were no current tools to assess the quality of sex education that have been subject to assessment of validation and reliability. The authors created their own questionnaire (Appendix I) with reference to an online survey developed by the Teen Choice Action Team of the organisation NARAL Pro-Choice Oregon. We created an additional item for inclusion in the correlational analysis asking participants to rate on a five-item scale whether their education was weighted more towards risk or relationships (1 = fully risk and sexual health focused, 2 = mostly 3 = balance between risk/sexual health and relationships/pleasure, 4 = mostly relationships, pleasure and reciprocity focused and 5 = fully mostly relationships, pleasure and reciprocity focused). When included in the correlation matrix, this variable was not significantly associated with any of the variables.

Table 10

Correlations between (1) sex education quality and (2) oSEM-use, psychosocial outcomes, and perceived realism

	Sex education quality
1. oSEM-use	-.02
2. Perceived realism	.03
3. Body satisfaction	.06
4. Sexual satisfaction	.02
5. Wellbeing	.08
6. Total Ambivalent Sexism	.04
7. Total ambivalent sexism toward men	-.04

*Correlation is significant at $p = .004$ (2-tailed)

Given the positioning of the questionnaire at the end of the survey, drop-out rate by this point had increased, with only 237 participants completing the measure in full. This may have been prevented by counterbalancing the order of the measures. However, with so many variables already included in the study, it did not feel like this would add any additional understanding at this stage, but would be a useful area to investigate further in future, given the sample's poor opinion of their sex education.

4. Extended Discussion

4.1 Overview

This section will summarise the main findings and how they compare and contribute to extant literature and theory. A more in depth critique of the study's limitations will also be explored. Future research and clinical implications will be considered more comprehensively. Finally, critical reflections of the research process will be shared.

4.2 Summary of findings

This project examined the impact of online sexually explicit material (oSEM) use on a range outcomes important for psychological health and functioning. These included: body image, sexual satisfaction, sexist attitudes and mental well-being. The literature has highlighted strongly held assumptions about the influence of oSEM in relation to these variables which we wished to explore in more depth. We investigated the role of perceived realism and the extent to which this might mediate the relationship between oSEM-use and these variables. Finally, the role of family communication about sex and the extent to which this moderated the function of perceived realism was assessed. The overall purpose was to attempt to establish a moderated mediation model of oSEM effects and provide support for the Differential Susceptibility Model of Media effects (DSMM; Valkenburg & Peter, 2013); enhancing a theoretical understanding of the influence of oSEM.

In addition, the study examined whether a particular cohort aged approximately between 18 and 24, whom we named "Generation Sex" were more susceptible to the possible effects of oSEM. This group were the first to have experienced adolescence at the same time as the massive proliferation of online pornography. We analysed whether there were group differences for each of the variables between this cohort and those aged 25 and over, for whom online pornography was not so accessible.

The results provided minimal support for previous pornography effects research and for this overall model. No inter-correlations were revealed between oSEM and the psychosocial outcome variables. Perceived realism was not associated with these variables, apart from sexism, and as such, its role as a mediator was inconsistent. Attempting to make sense of, and provide a coherent rationale for these findings was a challenging task. This was a result of the many complexities and intricacies of sexuality and the individual differences in susceptibility to media effects.

4.2.1 Sexual satisfaction

The journal and extended background highlight the mixed results of previous research investigating the influence of pornography on sexual satisfaction. Based on this, a relationship of some nature, either positive or negative, might have been expected. Our study demonstrated no association. Explanations for this could be attributed to the study's neutral stance and design; something unique about the sample (see limitations section below); or shortcomings in the choice of measure used to capture this dimension (see extended background section 1.9.4). Our null findings might also suggest that previous research holds too simplistic an understanding of how sexual satisfaction and pornography might be related.

Theories of sexuality suggest the role of either social comparisons (Festinger, 1954) or deviations from sexual scripts (Simon & Gagnon, 1986) in accounting for how pornography might influence someone's perceptions of their own sexual practice and relationships. The lack of association might allude to underlying, complex processes for how these comparisons are made or scripts activated. These processes do not appear to be explicitly stated in the current theory in relation to pornography. For example, research in this area might be framed by the assumption that depictions of sex in pornography are idealised or preferable to those in real-life. If this were the case, then social appraisals or scripts might hold more power to fuel unhelpful appraisals about one's own sex life. Pornography portrays a vast array of sexual activities ranging from, amateur to elaborate studio productions, female friendly to fetish; continuously adapting and tailoring its content to meet the extensive and diverse sexual preferences of its viewers. What constitutes 'ideal' sex will differ for each person, as will the arousal,

affective, cognitive and behavioural response to the pornography they view (Fisher & Barak, 2001). For example, if someone values sexual intimacy most highly in their sexual encounters, then it might be unlikely that they would compare their real-life intimate encounters as less favourable to the commonly less intimate portrayals of sex in pornography. Application of the above theories therefore becomes problematic based on these complexities of comparing one's own sexual practices to what is portrayed in pornography. It also points to the potential importance of sexual experience and the extent to which this has the power to influence our scripts or the comparisons we make (Peter & Valkenburg, 2009).

Given the importance of sexual health and well-being (WHO, 2002), these findings may challenge the extent to which pornography can be constituted a threat to sexual well-being. Although it is not possible to form irrefutable conclusions regarding its relationship, it highlights the need for a more nuanced and comprehensive understanding of what might influence sexual satisfaction and how this might occur. In congruence with previous literature, the current study did reveal positive associations between sexual satisfaction, body image and well-being. Regardless of directionality, this supports the link between sexuality and well-being (Pujols, Meston & Seal, 2010), and as such is an important clinical topic that warrants continuing attention and research.

4.2.2 Body image

Body image was not revealed to be associated with oSEM-use, perhaps for similar reasons listed for sexual satisfaction. Whilst still comparatively scant, research has revealed inconsistent findings regarding their relationship (Cranney, 2015). Our findings therefore add an additional perspective, one which contradicts research's "intuitive speculation" (Cranney, 2015, pp. 6) that pornography and body dissatisfaction are causally linked. This is potentially unexpected given consistent evidence demonstrating general media's influence on body dissatisfaction (Lopez-Guimera, Levine, Sanchez-Carracedo & Fauquet (2010). This may indicate pervasive limitations of the research in this domain. It may also suggest that there is something distinct about pornographic content that attenuates the upwards comparisons believed to account for the dissatisfaction

(Festinger, 1954, Peter & Valkenburg, 2014). One potential explanation may be the role of cognitive correction processes on social comparisons. This suggests that although social comparisons are likely to be automatic, the effects can be modified through conscious processing (Want, 2009). If an individual has a general awareness that pornography actors are selected based on fitting a particular aesthetic, such as having a large penis or pair of breasts, this might correct the initial social comparison and reduce the effects on dissatisfaction. This hypothesis may be supported by the current study's finding that body satisfaction and perceived realism were not associated. This perception of a lack of realism within oSEM might contribute to these cognitive corrections, more so than in everyday media, whose bodily portrayals may be perceived as more realistic (Horvath et al., 2013). This is additionally reinforced by previous research which has suggested that viewing pornography as more realistic will more likely influence body image than viewing it as unrealistic (Kvalem et al., 2014).

Differences in research design and constitution of participant samples makes comparison with extant literature problematic. Cranney (2015) and Peter and Valkenburg (2014) both found associations between oSEM-use and body dissatisfaction in men but not women. In our sample, only 28% were male. Therefore, if these effects are more powerful for men, an initial interpretation might be that our analysis was not powerful enough to reveal a relationship. Although no sex differences were revealed, the small number of men compared to women might account for this null result. Additionally, some studies focused specifically on satisfaction with genital appearance as this is believed to be more sensitive to the influence of pornography (Kvalem et al., 2014). Although our measure did include one item about genital appearance, this was not assessed distinctly from other areas of the body and only an overall perception of body satisfaction was obtained.

Alternatively, this result might represent a challenge to the empirically invalid assumption that pornography influences body dissatisfaction. They may instead reflect a state of habituation to idealised media presentations of male and female bodies (Peter & Valkenburg, 2014). Differentiating between and isolating the influence of everyday media, which an individual will undoubtedly be exposed to far more frequently than oSEM, represents a challenge for future research.

4.2.3 Sexist attitudes

Our study did not demonstrate an association between oSEM-use and measures of sexism (ASI and AMI), but a small indirect effect, through perceived realism was revealed. Potential theoretical explanations for this result were discussed in the journal paper, including the role of cultivation (Gerbner & Gross, 1976), social learning (Bandura, 1986) and media practice effects (Brown, 2000). Although the theoretical basis for understanding of the relationship between oSEM-use and perceived realism is fairly well established (Morgan, 2011), explanations for the association between perceived realism and sexist attitudes are less so. This finding has not been previously demonstrated in the literature. As a result of this lack of comparable findings, explanations for why perceived realism was only found to mediate sexism and none of the other variables are unclear.

The concept of perceived realism was discussed comprehensively in section 1.7. Sexual script theory (Simon & Gagnon, 1986) provides a potential explanation for the role of perceived realism in relation to oSEM. In summary, more frequent use influences the development and formation of particular scripts and subsequent viewing will be interpreted as more realistic due to congruency with these scripts. Sexist attitudes, via a similar scripting process, may become intrinsic and subsequently activated and reinforced when viewing oSEM that is sexist in nature (Sanchez, Fetterolf & Rudman, 2012). If an individual perceives the reality of oSEM to be high, this may potentially enhance the similarity of their scripts with what they are viewing and increase the sensitivity of which these scripts are activated.

In opposition to the fervent feminist argument that pornography propagates women-hating ideology (Dines 2009), this explanation does not specifically point to the influence of oSEM in the development and subsequent reinforcement of these sexist scripts. It is increasingly acknowledged that individuals seek out oSEM content corresponding to their already held beliefs and values (Brown, 2000). It is not possible to determine without longitudinal data what the antecedent was. Similarly, oSEM content is not uniformly sexist and content analyses have revealed changing trends in how men and women are portrayed (McKee et al., 2008).

It has been suggested that one way to examine sexism in pornography is to compare films made for heterosexual men with gay male pornography (Salmon & Diamond, 2012). If pornography's key purpose is to objectify and denigrate women, then there would be no market for gay male pornography. Salmon and Diamond (2012) wished to examine this assumption and found that in terms of content, there were no significant differences between homosexual and heterosexual pornography (other than the sex of the actors). Their study highlighted the subjective and moralistic judgements of degrading sexual practices believed to proliferate sexism and called for broader interpretations and understanding of these practices. For example, radical feminists believe the act of ejaculating externally epitomises contempt for women. Evolutionary perspectives, as an alternative, focus on the nature of male sexual arousal and the importance of visual proof of satisfaction (Salmon & Diamond, 2012). This highlights the influence of ideological perspectives (see section 1.2) in shaping the interpretation of research.

The journal paper does not address whether there may be similar processes that underlie the extent to which individuals perceive media as realistic and the extent to which they hold more sexist attitudes. For example, whether there are personality characteristics or cognitive styles that influence the individual's critical interpretations of the media they are viewing, that is common in both perceived realism and sexism. Overall, the answer to this question and the process through which perceived realism and sexism might be associated remains unclear. Future research might benefit from attempting to explore possible commonalities or mechanisms underlying this association.

4.2.4 Well-being

The impact of pornography on well-being has long been regarded as something of great concern to the public. Eminent figures have concluded that pornography "stimulates attitudes and behaviour that...impair mental, emotional and physical health of children, adults and may thus contribute significantly to the morbidity burden in society" (Koop, 1986, as cited in Weaver, Weaver, Mays, Hopkins, Kanneberg & McBride, 2011). The results of our study do not support these hypothesised links between pornography use and well-being.

Well-being as a separate entity has rarely been investigated in isolation in previous literature. Of these limited studies, associations between pornography and indicators of mental and physical health have been reported. As a result, subsequent conclusions about the potential detrimental impact of pornography have been stated (Weaver et al., 2011). However, the cross sectional and correlational nature of the studies limit the veracity of these conclusions. These types of methodologies make it impossible to decipher the directionality of the associations or allow for the broader context, or underlying mechanisms to be considered. For example, is higher frequency of pornography use a contributor to someone's mental distress, or could it be something that provides them pleasure at a time in their life where they are struggling with other facets of their well-being? From this perspective, it is not possible to differentiate pornography as being the problem, or a symptom of an already present problem.

The explanations for our null findings could in part be extrapolated from the above sections. One could argue that each of the above factors (sexual satisfaction, body satisfaction and sexist attitudes) contributes to or subtracts from well-being. This hypothesis is supported by the positive correlations found between well-being, sexual satisfaction and body satisfaction. The null results could additionally be explained by the choice of measure or sampling method (see section 1.9.2). However, at face value, the results do not support the dominant message that pornography detracts from well-being across a number of domains.

4.2.5 Generation Sex

We conceptualised "Generation Sex" as being the first group of individuals to have progressed through adolescence, simultaneously to the proliferation of the internet and subsequent ubiquity of oSEM. Research emphasises the potential harms on this developing population of "digital natives" (Livingstone & Smith, 2014). But why do these fears persist even with a lack of robust and empirical research to support them? We aimed to investigate this by assessing whether the impact of pornography was related to either frequency of exposure (based on the assumption that Generation Sex would be accessing oSEM more frequently), or the age at which an individual first accessed oSEM (based on the hypothesis that Generation Sex would be accessing oSEM at a younger, developmentally

vulnerable age). However, our results revealed no associations between oSEM-use and psychosocial outcomes and no age differences between the two cohorts. These questions have therefore not been answered by our current research.

Despite our findings, it appears that research continues to support the notion that individuals are simple imitators of what they see and internalisers of pervasive messages (Malamuth & Impett, 2001, Fisher & Barak, 2001). The research basis and inspiration for the current study has been criticised for its lack of sophisticated methods. This may prevent the field from moving beyond assumptions about the impact of pornography on a range of factors based on correlational relationships (Attwood, 2011). Without a theoretical framework, our ability to understand what these relationships represent is very limited. This makes interpretation vulnerable to the influence of the political and cultural views regarding sexuality and what constitutes 'irresponsible' or 'deviant' sexual behaviour (McKee, 2009).

This backdrop has significant implications for the field of pornography research and the way in which studies are conceived and executed. It makes the task of deciphering research findings, independent of these dominant contexts, almost impossible. The pace at which technology is expanding provides an added layer of complexity to this task. It has been argued that the fears surrounding pornography and its impact are not new but that "we see more risk behaviours not because risky acts have increased, but because the technology makes them more conspicuous" (Boyd & Marwick, 2009, p. 413). Thus, it appears that pornography has formed a useful scapegoat for society's complex problems, more so than any other media (Attwood, 2011).

4.3 Study Implications

4.3.1 Theoretical implications

The limited findings in the current research do not unequivocally support or disprove any existing theory. The null findings in particular do not lend empirical support to the numerous theoretical frameworks underlying previous research (such as Social Comparison Theory). This is not surprising as the processes through which pornography may or may not exert its effects are too complex to be understood by a single framework.

The small indirect effect of oSEM-use on sexist attitudes through perceived realism offers some contribution towards a theoretical understanding of media effects by providing tentative support for the DSMM (Valkenburg & Peter, 2013). This model states the role of indirect effects, including the mediating role of different response states which can be emotional or cognitive. Perceived realism has yet to be conceptualised in this way. Continuing to investigate this variable might prove valuable in the field of media effects. However, this effect is not unique from other forms of media such as film or gaming. This poses the question of whether there is something distinct about sexual media or whether effects are generalisable across different forms of media. All media is supposed to have an effect, be it crying at a sad film, laughing at a comedy or being aroused by sexually explicit material. Whether arousal as a response state is more powerful than other emotional or cognitive responses is yet to be determined.

4.3.2 Clinical implications

The clinical relevance of this research is entrenched in the belief that all people are sexual beings and how they choose to engage with their sexuality (within legal limits) should be personal and free from judgment. Sexuality is a fundamental component of humanity (WHO, 2002), and as such, it matters. Research continues to emphasise the associations between sexual satisfaction and well-being (Pujols, et al., 2010) and the importance of sexual pleasure, “the psychological capacity to feel sexual desire and experience orgasm provides an especially intense form of physical and emotional pleasure” (McNair, 2002, pp.2).

Research appears to emphasise pornography’s role in detracting from this, without acknowledging its ability to provide many with pleasure (Atwood, 2005). For example, there is acknowledgment that women are using and enjoying pornography in increasing numbers (Atwood, 2005) and that when used in an open and mutual way, can enhance sexual intimacy between couples (Daneback et al., 2009).

Our research highlights the importance of critically considering the extant literature and the influences of dominant ideological perspectives. Without a critical and nuanced approach to the research, empirically invalid messages may continue to be distributed, designed to scare and shame those who use

pornography in a normative and healthy way. For example, one website described findings from a Federal Bureau Investigation. They claimed that in a study involving 36 serial murderers, 81% reported pornography as one of their highest sexual interests. They concluded this makes pornography one of the most common profile characteristics of serial murderers (Jones, 2000). These types of statistics are significantly biased and potentially harmful, as they further stigmatise the subject, promoting secrecy, shame and the pathologising of arguably normative sexual behaviour.

4.4. Critical evaluation

Our research was subject to a number of methodological concerns. As discussed in the journal paper, a significant constraint of cross-sectional research is the reliance on averaging effects within groups. This is particularly problematic for sex research as samples tend to be highly heterogeneous (Peterson & Hyde, 2009). Given these concerns, the decision to retain the data from the participants who identified as non-heterosexual was challenging based on their potential to significantly skew the results. Non-heterosexuals are considerably under-represented in pornography research. It is not clear whether the way in which they interact and use sexually explicit media is similar or distinct to heterosexuals. Some argue that homosexual pornography contributes to a sense of community and identity and that it is liberating for sexual minorities (Karaian, 2005). This is a definitive contrast to the prominent conservative and feminist ideologies regarding heterosexual pornography and its propagation of sexism and moral decline. If this were accurate, how heterosexuals and non-heterosexuals responded in the survey would be significantly different, subsequently calling into question the validity of our study's results.

However, queer theorists reject categorisation of sexual identities, arguing their role in the maintenance of patriarchal order. They advocate the need to move beyond dominant discourses that define gender identity and instead, accept their fluidity. This theory asserts that there are as many sexual and gender identities as there are human beings (Pakkan, 2015). According to this view, we would

expect equivocal variation within the heterosexual proportion of the sample, and as such, the decision to retain the non-heterosexual data felt justified.

An additional limitation related to the breadth and diversity of pornography genres and lack of control for this in the research design. Participants were recruited based on normative and legal uses of pornography. They were asked to state their preferences based on categories specified by a popular pornography streaming website. Space for free text responses were provided to allow participants to state any additional categories not listed. However, this introduced a similar limitation of averaging effects. The current study was unable to assess whether specific genres might affect people in different ways, or whether particular characteristics influence the type of sexual media selected.

The issue of study dropout rates has significant consequences for a study's power and ability to generalise their findings (Hoerger, 2010). Our research suffered a 6% attrition rate across the measures used in the main analysis. This is below what is expected in survey-based research, which cite an average 10% dropout rate (Hoerger, 2010). Unfortunately, the survey's interface did not allow the attrition rate to be tracked and analysed, so the presence of any particular pattern was not assessed. An additional 10% of the sample dropped out of the survey before completing measures assessing sex education and a further 9% before completing a measure of social desirability. This suggests the survey may have been too long and highlights the need to have counterbalanced the order of the measures. Given the significant dropout, the measures of sex education and social desirability were not included in the main analysis.

Consideration of the influence of social desirability, which refers to the tendency to distort answers in a direction perceived to be more acceptable (Hyde & DeLamater, 2013), is particularly important in sex research. In pornography research, given the controversial nature of the topic, one might expect social desirable responding to be particularly high. Inclusion of an instrument to assess social desirability helps to determine whether responses to the other measures were subject to this bias. Therefore, not having this data is a particular limitation of the current research.

Social media as a platform for recruitment has many advantages (see section 2.8). However, as evidenced by the higher proportion of females in the sample, this method does not ensure representative sampling. As a female researcher, a higher proportion of my connections on social media are female, and it was anticipated that this imbalance might continue as recruitment snowballed. Additionally, the people I associate with on social media tend to be within a limited age bracket, socioeconomic and educational status. As demonstrated by recent controversial political and news items, my news feed suggested that my beliefs and opinions are commonly shared by those on my social media. Therefore, it could be assumed that those recruited directly from my social media may share similar and critical opinions about pornography. This has the consequence of lessening the representativeness of the sample and limits the extent to which the results can be generalised.

A critical limitation lies within the epistemological debate of whether it is possible to objectively measure and examine the variables in question. It is argued that concepts such as sexuality are far too intricate to be understood in quantifiable terms. Quantitative methods are believed by some to fail to capture the complex political, social and cultural constructions of sexuality (Atwood, 2005). Including a qualitative component may have helped to capture how oSEM is experienced by the individual, providing additional context to the quantitative data.

4.5 Future research

Ideas for future research have been briefly highlighted in the sections above. With regards to the numerous limitations already cited, devising robust research methods to further explore the relationships between oSEM and psychosocial outcomes, poses significant challenges to the field.

A common critique has been the over-reliance on correlational and cross-sectional designs. Although these provide baseline evidence for certain associations, research needs to move beyond these simple relationships. With reference to the DSMM (Valkenburg & Peter, 2013), further exploration of possible susceptibility characteristics and mediating and moderating variables, will help to enhance our theoretical understanding of the influence of sexually explicit media. Emphasis on individual-differences might help to increase our

knowledge of what may contribute to an individual's susceptibility to the influence of oSEM.

Other possible methods for enhancing our awareness of the extensive environmental and personal determinants that might underlie these relationships include the use of longitudinal designs. The importance of maturation and sexual experience is increasingly recognised (Peter & Valkenburg, 2010) both of which are more likely to be captured by such designs, rather than relying on retrospective recall. Longitudinal methods are believed to be the only design which allows developmental patterns of individual change to be truly understood (Peterson & Hyde, 2009). By tracking individual change over a period of time, it is possible to analyse developmental and behavioural sequences. This allows researchers to understand the order of events in these changes (Morris, Robinson & Eisenberg, 2006). Through tracking oSEM-use and a range of psychosocial outcomes over time, these designs may contribute to a more comprehensive understanding of the antecedents and consequences of oSEM-use. With the introduction of sophisticated analytical techniques such as; hierarchal linear modelling (HLM), structural equation modelling (SEM) and growth mixture modelling (GMM); these methods can provide a comprehensive examination of the developmental sequences and co-occurring changes (Peterson & Hyde 2009). Longitudinal methods are subject to their own limitations. Sample retention and attrition are particularly problematic. Additionally, the environmental, political and social contexts surrounding the behavioural and developmental sequences may not always be considered.

This argument alludes to the aforementioned limitation regarding the epistemological stance of sex research. Some assert their position that sexuality is socially constructed, and as such, it is not possible to measure through purely quantitative means (Attwood, 2005). There is currently, comparatively little qualitative research in this field (Kohut, et al., 2016). Attwood (2005) argues this reduces current knowledge about the influence of sexually explicit material to "effects" (for example, whether pornography use results in sexist attitudes towards women). Media theorists argue, that albeit smaller in scale, qualitative methods provide richer and more detailed information on how media consumption impacts the individual (Hardy, 2004). Future research may therefore

benefit from these types of methods, such as interviews and focus groups. These may provide insights into the individual's' experiences with and, attitudes towards pornography.

With new innovations in technologies, the field of media effects research is liable to change. As technologies become more interactive, as in the case of virtual reality platforms, individuals are engaging with media in a way that is far more pervasive and consuming. The application of this technology to oSEM poses a very interesting development in the field of pornography studies. Future research might wish to explore how this added level of interaction and involvement contributes to the pornography debate.

Finally, there is comparatively little research looking at differences and trends in pornography use amongst individuals of different gender and sexual identities (Morse, 2015). A significant proportion of the current research looks at heterosexual populations. These categories are increasingly diverse and fluid (Pakkan, 2015) and it is unclear whether this is reflected in diversification of pornography categories and themes. Future research might wish to consider the inclusion of these diverse groups to provide a more comprehensive and relevant picture of pornography effects.

4.6 Critical reflection

4.6.1 Personal reflection

My initial inspiration for the project came to me during a Channel 4 documentary in which a Belgian sexologist wished to address the quality of sex education in schools. She asserted that pornography was providing a distorted picture of sexuality and that educators should be responsible for providing more comprehensive sex education to address this concern. She argued the need for education based on sexual pleasure, relationships and respect; so that young people would be able to contextualise the pornography they view. Although I agreed with the main sentiments, I was left questioning this idea of pornography distorting sexuality. I wondered why it appeared that young people who watch pornography, of which there are many (Horvath, et al., 2013), did not appear to have the ability to contextualise what they viewed. This suggested differential

processes occurring when individuals viewed pornography as opposed to other media, and I was interested to find out what these could be.

“Inconsistency is the only consistency” (Segal, 1994, as cited in Atwood, 2005). This summarises the vast amount of literature I have encountered during the research process and my struggles to establish a coherent narrative regarding pornography effects. I found myself feeling caught between the dominant discourses that either condemn or promote pornography in contradictory ways (Atwood, 2007). This was demonstrated by my initial reluctance to take on the project. I felt my critical and inquisitive nature lent itself well to the study of a seemingly controversial topic. However, I was acutely aware of my concerns about how others might perceive my choice of thesis topic, and a sense of embarrassment associated with this. Despite the asserted “pornification of culture” (McNair, 2002), pornography was not a topic I spoke freely and openly about. This was an interesting personal realisation, as I would have previously regarded myself as someone who was broad minded and open to sexual discussions. I believed this to be a result of a fairly liberal upbringing, whereby sexual topics were discussed openly and curiosity was met with information rather than avoidance or punishment. However, pornography was one topic that we never discussed. It was these early experiences that helped define the moderating variable of family communication about sex. It was because of this open communication that I felt I had the knowledge and perspective to contextualise the sexual messages and content I have been subsequently exposed to.

In doing this project, I had to closely examine and challenge my beliefs about the subject in order to maintain a truly neutral position. This position was challenged throughout the research process. I was frequently presented with a personal dichotomy between wishing to understand normative uses of pornography, wanting to reduce shame and promote sexual expression, but acknowledging strong opposition and the fact that there are strong themes of violence and humiliation in some pornography. My neutrality was helped by reminding myself of the broader context and reviewing a plethora of poorly conducted and moral-laden research.

4.6.1.2 Clinical implications

As demonstrated by a comparatively sparse clinical implications section, this was an area I struggled to formulate. When comparing my topic to that of my colleagues who could argue valuable clinical relevance, pornography seemed less important. However clinical psychology as a broad and diverse field, does concern itself with sexuality and well-being. The impact of pornography is still poorly understood and as such, is vulnerable to subjectivity and bias which can give rise to misinformation and prejudice. Understanding the potential negative, neutral and positive influences of pornography has significant implications for psychosexual development, sexual functioning, media effects and relational functioning. For these reasons, I believe the project's clinical relevance is defensible and important.

4.6.1.3 Epistemology and methodology

An additional conflict I had concerned the philosophical assumptions inherent to the quantitative research design. Quantitative designs are commonly associated with positivist assumptions that reality is objective and measurable. Our study was constructed from a post-positivist, critical realist perspective as it attempted to explore unobservable mechanisms, underlying observable relationships. My conflict therefore resulted from acknowledging the usefulness of quantitative inquiry, but questioning its relevance to the study of the complex and nuanced subject of sexuality. I believe quantitative designs do provide pertinent and influential information, but that additional qualitative information can help ground the results within particular contexts that might enhance understanding even further. This stance remains congruent with the critical realist position but suggests alternative methods for investigating similar phenomena.

4.6.2 Situating the research

This study contributes to the growing and inconsistent literature in the field of pornography research. The null findings lend evidence to a neutral voice, one which is less present in the research. This situates our findings in the middle of a controversial debate around the "pornification of culture" (McNair, 2002). On one side are the radical feminists who continue to claim pornography's contribution to

gender inequality. On the other sit the liberals and post-feminists who question whether pornography is liberating sexuality. Our results support neither.

This highlights the question of the usefulness of the research and how this neutrality might be perceived by the scientific community. It neither supports anti or pro-pornography research. However, I would argue that these null results pose a significant challenge to the pervasive discourses regarding the effects of pornography. With our attempts to conduct a neutral, value-free piece of research; the fact that our findings reflected this provides a powerful message about the influence of the researcher and research method. Without this acknowledgement, research into the effects of pornography will continue to postulate conclusions that are empirically questionable, hindering the growth of knowledge and formation of theory.

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Appendix A: Literature review search terms

Search terms:

1. Porn*
2. Eroti*
3. X?rated
4. x-rated
5. sex* explicit material*
6. sex* visual image*
7. online sex* activity
8. sex* media
9. exp *pornography/
- 10.exp *eroticism/
- 11.intima*
- 12.couple*
- 13.partner*
- 14.marri*
- 15.spous*
- 16.intimate relations*
- 17.sexual relations*
- 18.exp couples/
- 19.exp marriage/
- 20.exp sexual partners/
- 21.exp marital relations
- 22.exp spouses/
- 23.1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10
- 24.11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22
- 25.**23 and 24**

Appendix B: Ethical Approval

Notification of ethical approval was received via email, the contents of which have been copied below.

Dear Ruth

This is to confirm that your application for ethical approval was conditionally approved, pending the following amendments:

- Data withdrawal should be up to two weeks from up to two weeks to withdraw from study.
- The statement around the use of watching pornography should be reworded to “some people enjoy watching pornography as part of their sex life”. The committee believed that this to be a more accurate wording.
- Queries about **ethics** should be directed to soprec@lincoln.ac.uk
- There was also some typographical errors in the documents, these need to be addressed.

Your supervisor can approve make the relevant changes, there is no need to resubmit.

Kind regards

Soprec



School of Psychology Research **Ethics** Committee |

SOPREC

College of Social Science

University of Lincoln. Brayford Pool, Lincoln, Lincolnshire. LN6 7TS

Email – soprec@lincoln.ac.uk

LET'S TALK ABOUT SEX....



Are you over the age of **18**? Would you be willing to take part in a **study** about **online sexually explicit material** (porn) as part of a Clinical Psychology Doctoral research project?

It does not matter whether you watch it or not! If you choose to take part in the study you will be asked to complete an online questionnaire. This will take approximately 20 minutes. The questionnaire will ask you about your sexual behaviour, the use of online sexually explicit material and questions about your general wellbeing.

If you take part, you will be offered the opportunity to enter a prize draw to win either one **£100 Amazon voucher** or one of two, **£50 Amazon voucher** prizes.

To take part in the study, you can visit the research website where you will find the online questionnaire or email the researcher for further information.

Website:

Email:

Researcher details: Ruth Charig, Trainee Clinical Psychologist, under the supervision of Dr Dave Dawson and Dr Nima Moghaddam.

Appendix D: Online Text Advert

Are you over the age of **18**? Would you be willing to take part in a **study** about **online sexually explicit material** (porn) as part of a Clinical Psychology Doctoral project? It does not matter whether you watch it or not. If you choose to take part in the study you will be asked to complete an online questionnaire. The questionnaire will ask you about your sexual behaviour, the use of online sexually explicit material and questions about your general wellbeing. All of your answers will be **anonymous**. No one will know you have taken part in the study.

If you take part, you will be offered the opportunity to enter a prize draw to win either one £100 Amazon voucher or one of two, £50 Amazon voucher prizes.

Interested?

To take part in the study, please click on the following link: xxxxxxxxx

For further information, please feel free to contact the researchers: xxxxxxxxx

The Impact of Online Sexually Explicit

We would like to invite you to take part in our research study. Your involvement will take approximately 20 minutes, but before you decide, we would like you to understand why the research is being done and what it will involve. Please read the following information carefully.

What is the purpose of the study?

Some people enjoy watching pornography as part of their sex life. We are interested in exploring people's use of online sexually explicit material (oSEM), sexual behaviour and beliefs about the realism of oSEM. The aim is to help us have a better understanding of the impact of watching oSEM on a range of outcomes and also why some people may be more influenced than others.

Why have I been invited?

We are inviting anybody in the UK who is over the age of 18 to take part.

Do I have to take part?

It is up to you whether or not you would like to take part. If you do decide to take part, you are still free to withdraw at any time before you submit the questionnaire and without giving any reason. You are also free to withdraw up to **two weeks** after submitting your responses by contacting the researchers.

What will happen to me if I take part?

You will be asked to complete an online questionnaire. The questionnaire asks about your use of oSEM, sexual behaviour, beliefs about the realism of oSEM and your general well-being. It will also ask about your experiences of speaking to your parents about sex and questions about your sex education. It will take approximately 20 minutes to complete. However, you do not need to complete the questionnaire in one go. You can save your answers and return at a later date to complete it.

Expenses and payment

Participants will not be paid to take part in the study. However, you will be offered the opportunity to enter a prize draw where you will have the chance to win either one £100 Amazon voucher or one of two, £50 Amazon voucher prizes. You will be asked to leave your contact details via a separate link so it will not be directly connected to your questionnaire responses and maintain your anonymity.

What are the possible disadvantages and risks of taking part?

It may take some time to complete the questionnaires. However, by providing you with a unique ID, you will be able to log in and complete the questions at a later date. The survey aims to explore your sexual behaviour and use of oSEM, which may raise concerns for some people. For this reason, you can withdraw from the study at any point. If you do have any concerns, you will be able to contact the researchers for support or guidance. In addition, we have listed a range of agencies below who can offer you advice and/or support. These will be listed again at the end of the questionnaire.

What are the possible benefits for taking part?

The research is unlikely to help you directly, but by taking part you will help us to better understand the impact of viewing oSEM on people's wellbeing. You will also be offered the opportunity to enter a prize draw where you will have the chance to win one £100 Amazon voucher or one of two, £50 Amazon voucher prizes.

What if there is a problem?

If you have a concern about any aspect of the study, you can speak to the researchers who will answer your questions or direct you to additional resources or support. If you wish to complain about any aspect of the study, in the first instance you can contact the researchers. If this is not satisfactory, the researchers can put you in touch with the University's Ethics Committee.

Will my taking part in the study be kept confidential?

In keeping with ethical and legal practice, all information will be handled in confidence. All your responses to the questions will be kept strictly confidential. You will not be asked for personal information and all your data will be linked to a unique ID. This ID can be used if you would like to withdraw your data from the study. All data will be stored on a password protected database. All research data will be kept securely for 7 years. After this time, the data will be securely disposed of. All precautions will be taken to maintain your confidentiality and only members of the research team will have access to your data.

If you would like to enter the prize draw, you will be directed to a separate link, where you can leave contact details. This will be in no way linked to your questionnaire responses.

What happens if I do not want to carry on with the study?

Your participation is voluntary and you are free to withdraw at any time, without giving any reason. On entering into the study, you will be given a unique ID. If you would like to have your data removed from the study, you can provide this to the researchers up to two weeks after submitting your responses, who will then remove the data.

What will happen to the results of the research?

The results will be written up as a Doctoral thesis and submitted for publication in a scientific journal. You will not be personally identifiable from these reports. If you would like to receive a copy of the results, please contact the researchers.

Who is organising and funding the research?

The research is being organised and funded by the University of Lincoln as part of a Doctoral training programmed in Clinical Psychology.

Who has reviewed the study?

To protect your interests, the research has been reviewed and *given favourable opinion* by Lincoln University's Research Ethics Committee.

Further information and contact details:

Researcher: Ruth Charig, Trainee Clinical Psychologist

Email: 14498806@students.lincoln.ac.uk

Address: Doctorate in Clinical Psychology, School of Social Sciences, University of Lincoln, Brayford Pool, Lincoln, Lincolnshire, LN6 7TS

Supervisor: Dr Dave Dawson

Email: DDawson@lincoln.ac.uk

Address: Doctorate in Clinical Psychology, School of Social Sciences, University of Lincoln, Brayford Pool, Lincoln, Lincolnshire, LN6 7TS

Supervisor: Dr Nima Moghaddam

Email: Nmoghaddam@lincoln.ac.uk

Address: Doctorate in Clinical Psychology, School of Social Sciences, University of Lincoln, Brayford Pool, Lincoln, Lincolnshire, LN6 7TS

Ethics Committee: Dr Aidan Hart

Address: School of Psychology Ethics Committee, University of Lincoln, Brayford Pool, Lincoln, Lincolnshire, LN6 7TS

Support agencies:

If for any reason you feel you would like to talk to somebody about any issues raised by this questionnaire, there are a number of agencies who can help you. Some of these include:

Relate (advice and support on relationships and sexuality) 0300 100 1234, www.relate.org.uk

Samaritans (emotional support 24 hours a day) 08457 909090, www.samaritans.org

If you have read the above and are happy to take part, please proceed to the questionnaire by clicking 'Next'. By doing so you are consenting to take part in the study. If you do not wish to take part, please exit the browser.

Please tick this box to confirm that you are over the age of 18 ☐

If you are not aged 18 or above, we are sorry but you are not eligible to continue this study.

Appendix F: Demographics

1. Please state your age:

Prefer not to say

2. What gender do you identify with?

Free Text:

Prefer not to say

3. What is your sexual orientation?

Free Text

Prefer not to say

4. What is your religious affiliation if any⁴⁵?

- a. Christian (Catholic)
- b. Christian (Protestant)
- c. Christian (Other)
- d. Jewish
- e. Sikh
- f. Muslim
- g. Buddhist
- h. Hindu
- i. No religion
- j. Other (please state)
- k. Prefer not to say

5. What is your ethnic group?⁴⁶ Choose one option that best describes your ethnic group or background

- a. White
 - 1. English/Welsh/Scottish/Northern Irish/British
 - 2. Irish
 - 3. Gypsy or Irish Traveller
 - 4. Any other White background, please describe
- b. Mixed/Multiple ethnic groups
 - 5. White and Black Caribbean
 - 6. White and Black African
 - 7. White and Asian
 - 8. Any other Mixed/Multiple ethnic background, please describe
- c. Asian/Asian British
 - 9. Indian
 - 10. Pakistani
 - 11. Bangladeshi
 - 12. Chinese
 - 13. Any other Asian background, please describe

⁴⁵ Religious categories retrieved from <http://www.ons.gov.uk/ons/guide-method/measuring-equality/equality/ethnic-nat-identity-religion/religion/index.html#6>

⁴⁶ Ethnicity categories retrieved from <http://www.ons.gov.uk/ons/guide-method/measuring-equality/equality/ethnic-nat-identity-religion/ethnic-group/index.html#8>

- d. Black/ African/Caribbean/Black British
 - 14. African
 - 15. Caribbean
 - 16. Any other Black/African/Caribbean background, please describe
 - e. Other ethnic group
 - 17. Arab
 - 18. Any other ethnic group, please describe:
 - f. Prefer not to say
6. Education level
- a. Years of education:
 - b. Highest qualification achieved
 - i. None
 - ii. GCSE's
 - iii. A Levels
 - iv. Bachelor's Degree
 - v. Master's Degree
 - vi. PHD
7. What is your current employment status?
- a. Student
 - b. Unemployed
 - c. Part-time
 - d. Full time
 - e. Retired
8. What is your current marital status?
- a. Single
 - b. Dating
 - c. In an exclusive relationship (i.e. only dating one person)
 - d. Cohabiting
 - e. Married
 - f. Divorced
 - g. Widowed

Appendix G: Sexual behaviour and experience

1. At what age did you start to engage in solo sexual activity (i.e. masturbate?)
 - a. Age:
 - b. I have never masturbated
 - c. Prefer not to say
2. How often do you usually masturbate?
3. How old were you when you first had a sexual experience with one or more people?
 - a. Age:
 - b. I have never had a sexual experience with another person
 - c. Prefer not to say
4. Please specify which sexual acts (e.g. oral sex, vagina intercourse, anal intercourse, group, BDSM, etc.) you most commonly engage in?
 - a. Free text
5. How often do you engage in these sexual acts?
6. How many sexual partners have you had?
 - a. None
 - b. 1-2
 - c. 3-6
 - d. 7-10
 - e. 11-20
 - f. 21-30
 - g. 31 or more
 - h. Prefer not to say

Appendix H: oSEM-use

The following questions are related to your use of online sexually explicit material (oSEM) in the **last 3 months**.

Please only respond refer to content you have seen or downloaded from the internet (i.e. not DVDs, magazines, books etc.)

How often in the last 3 months have you intentionally looked at:

	1	2	3	4	5	6	7
	Never	Less than once a month	1 to 3 times a month	Once a week	Several times a week	Every day	Several times a day
1 Pictures with clearly exposed genitals							
2 Videos (clips) with clearly exposed genitals							
3 Pictures in which people are having sex							
4 Videos (clips) in which people are having sex							

Additional items:

- 1) At what age did you first see/use oSEM?
 - a. Age:
 - b. I have never seen/used online pornography (skip following questions)
- 2) How do you access oSEM?
 - a. Home computer
 - b. Computer (other)
 - c. Phone
 - d. Tablet

- e. Other
- 3) In what context do you use oSEM?
- a. Alone
 - b. With a sexual partner
 - c. Friend(s)
 - d. Other
- 4) For what reasons do you use oSEM?
- a. Sexual arousal and masturbation (solitary)
 - b. Sexual arousal with other (e.g. as part of foreplay)
 - c. Education/information
 - d. Curiosity
 - e. Boredom
 - f. To develop sexual skills and confidence
 - g. Other
- 5) What are your preferences in pornographic themes?

Appendix I: Sex Education Survey

- 1) At what age did you first receive formal sex education?
 - a. Age:
 - b. I have never received formal sex education
- 2) In what context(s) did you receive formal sex education? (Please tick all that apply)
 - a. School (religion-based)
 - b. School (non-religious)
 - c. Parents/guardians
 - d. Religious group
 - e. Seminar
 - f. Family planning clinic
 - g. I have never received formal sex education
 - h. Other (please specify)
- 3) Which of the following topics were covered during sex education?
 - a. Sexually transmitted infections/diseases (STI/STDs)
 - b. Birth control
 - c. Consent
 - d. Accurate male anatomy
 - e. Accurate female anatomy
 - f. Sexuality
 - g. Gender spectrum
 - h. Pregnancy/birth
 - i. Relationships
 - j. Pornography
 - k. Masturbation
 - l. Body image
 - m. Sexual pleasure
 - n. Other (please specify)
- 4) How would you rate the quality of the sexual education you received?
 - a. Excellent quality
 - b. Good quality
 - c. Neither good nor bad quality
 - d. Poor quality
 - e. Very poor quality
 - f. I have never received formal sex education
- 5) What was the balance of focus in your formal sex education?
 - a. Fully risk and sexual health focused
 - b. Mostly risk and sexual health focused
 - c. Balance between risk/sexual health and relationships/pleasure
 - d. Most relationships, pleasure and reciprocity focused
 - e. Fully relationships, pleasure and reciprocity focused
- 6) Which of the following did you use as a source of sex education? (Please tick all that apply)

- a. School
- b. Religious group
- c. Parents/guardian
- d. Siblings
- e. Friends
- f. Internet (not pornography)
- g. Pornography
 - i. Magazines
 - ii. DVDs
 - iii. Online sexually explicit material
- h. Books
- i. Magazines
- j. Other (please specify)

7) From the above, please state which sources was your MAIN or MOST USEFUL source of sex education: